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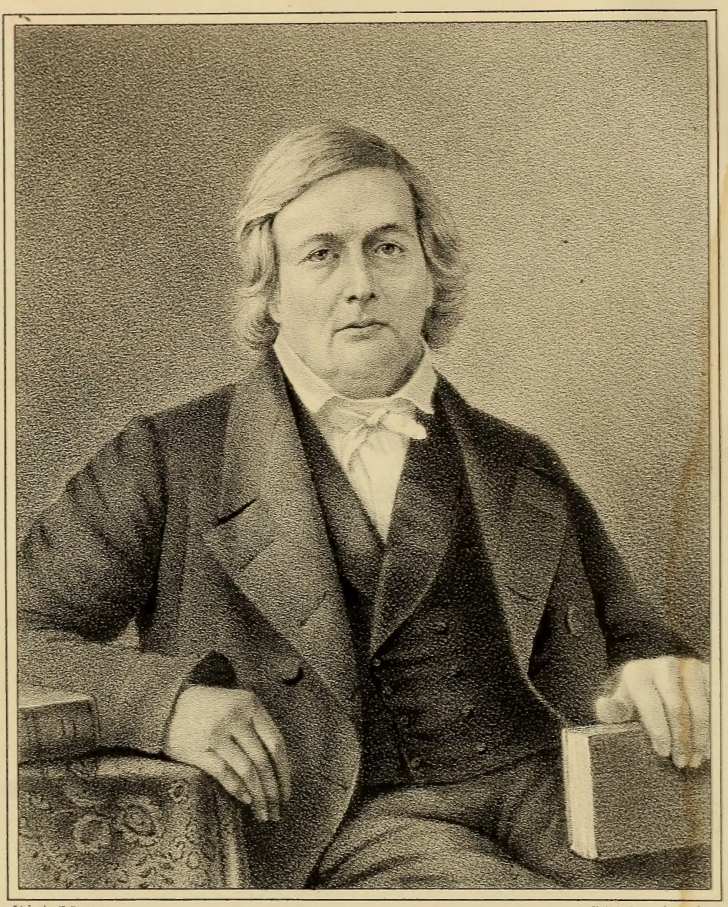

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Samuel H. Jennings M.D.
AEtat. 76.

A COMPENDIUM

OF

MEDICAL SCIENCE,

OR

FIFTY YEARS' EXPERIENCE IN THE ART OF HEALING:

BEING A

PLAIN AND PRACTICAL TREATISE

ON THE

PREVENTION AND CURE OF DISEASE,

DESIGNED TO ENLIGHTEN THE POPULAR MIND IN THE TRUE ELEMENTARY PRINCIPLES OF MEDICINE, AND PROTECT THE READING PUBLIC FROM THE MISCHIEFS OF QUACKERY.

SMITHSONIAN INSTITUTION.

10

By SAMUEL K. JENNINGS, M. D.
Late Professor of Obstetricks, &c., in the Washington University of Baltimore.

TUSKALOOSA, ALA:
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DEDICATION.

Authors ask permission, or assume the liberty, to dedicate their publications to illustrious patrons, with the hope of deriving additional personal dignity, or of procuring for their works a greater number of readers. We frankly acknowledge the influence of both these emulations; and in the spirit of becoming courtesy, dedicate the Compend of Medical Science to the Intelligent, the Humane, and the Benevolent, of all classes, in our vast community.

To the Intelligent first, because they will perceive the intention of the writer is, to introduce his readers to such an acquaintance with medical science, as will enable accurate observers, and close thinkers, to a very useful extent, to become, what great physicians, great statesmen, great jurists, great agriculturalists, or great merchants, always were, and must continue to be, self-taught.

They will perceive, that our work is intended to show to all candid readers, that the art of healing is not necessarily beclouded with inexplicable mystery. That the medical philosopher is not the enemy of his fellow citizens; nor the intelligent practicer of his profession, a curse to the human family.

If therefore, we shall succeed in attracting the attention of a goodly number of readers of this highly respectable class, our emulation to gain worthy personal distinction, will be fully gratified.

Our dedication is made in like manner to the Humane. It must have been a source of grief to all who feel a becom-

ing regard for the welfare of mankind, to contemplate the melancholy fact, that men of every grade of intellectual attainment, are better acquainted with every other concern than that of their own health. The sciences of government, law, religion, morals, &c., are studied as subjects of common interest; as necessary to a safe, peaceable and respectable passage through life, but the knowledge necessary for the preservation of health, is confided to those whose professional business it is, to visit and prescribe for the sick. This is a defect in the condition of humanity, that ought to be corrected.

If we shall have succeeded in making it manifest, that every man may know when he is in danger of being sick, and may ward off a threatened attack, or if actually under the influence of any ordinary disease, may arrest it in its onset, by his own exertion, it must follow, that the cause of humanity will be promoted by our instruction; and that many of our most humane fellow citizens will be numbered with our patrons.

If our sanguine hopes, in respect to these two distinguished specifications of our expected patrons shall be realized, we are safe in regard of the Benevolent.

Those excellent ones, whose disposition is to be useful to others; whose happiness requires them to cultivate fraternal love to mankind, and who rejoice when occasion offers to do them good, will appreciate our confident expectation of unlimited patronage from them.

Let the Intelligent give us their sanction, the Humane their approbation, and our success will be secured by the voluntary exertions of the Benevolent. And they will collectively, individually, and most deservedly be entitled to the most profound respect of their very obedient,

THE AUTHOR.

ADVERTISEMENT.

In view of the probability, that our book may be extensively read and fall into the hands of many young physicians, we conceived the after-thought, of adding the several items which constitute the appendix.

The treatise on prolapsus, &c. may possibly call the attention of some of the older members of the medical fraternity, and provoke them to renew their acquaintance with a subject which so much interests humanity, and which, they know, has been too much neglected by the profession. Mr. Charles W. Stockton, the gentleman in Philadelphia, who has been so long known as the manufacturer of superior porcelain teeth, holds a patent for the making and vending the pessary described in the treatise, which of course he will supply, as there shall be a demand for it.

The Synoptical Table of Materia Medica, will be found convenient for reference, to the student of that subject, at the same time, that it presents a very simple and comprehensive view of the therapeutic principles which should regulate the selection of medicinal substances.

The abridged treatise on the subject of Toxicology, is added for the same reasons which led the French Institute, in their report, to recommend it to the notice of government, advising that a copy should be kept for immediate reference, in all the public offices, as well as in every private house in the kingdom.

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PREFACE.

The author having completed a medical work, the fundamental principles of which have been under review for the space of forty years, regards it as a duty which he owes to his friends and the public, to submit it to their consideration. He believes it to be the policy as well as the duty of the profession to popularize the science of medicine. The public mind needs to be fortified against the flood of domestic and foreign impositions, under the name of remedies, which are the result of mercenary ignorance, and pernicious to human health and life. With this conviction, it is his earnest desire, before he closes his labors and his life, to leave to posterity his testimony concerning health and disease, prevention and cure;—subjects to which his reflections have been devoted for more than half a century.

He flatters himself, that his junior brethren in the profession, will find interest and profit, in perusing the lessons which he has learned in the school of experience;—lessons not taught by text books, nor often made intelligible, except at the bed side of the sick; and he hopes, that so far as he shall gain access to the community, his work will have a tendency to correct many erroneous opinions, and prevent much injurious practice; whilst it will serve to elevate in the public estimation, a profession, which, though it often

fails to be appreciated and rewarded, by the ignorant and thoughtless, is, nevertheless, justly entitled to the homage and respect, the affection and confidence, of the intelligent and candid, to an extent beyond the claims of any other merely human vocation.

Feeling the high responsibilities of men of our profession, more than forty years ago, he entered upon a course of vigilant observation, determined, if possible, to detect any existing error which might obtain in the science of medicine, and to make some improvemeut, however small it might prove to be.

Two whole years were spent, without having acquired any thing worthy of public notice. Not long afterwards, however, he was called to attend a number of cases of fever, of unusual type, difficult to manage, attended with symptoms of atony of the superficial capillaries, such as called for special attention to the external surface of the patient. During this service, he found it necessary, in addition to the use of ordinary rubefacients, to employ the external application of artificial heat. In marking the effect of this practice, he formed a number of conjectural opinions, which afterwards were tested by additional experience, and corrected or established, as facts directed.

In the years 1806-7, a similar fever prevailed, to an extent never before known in that district of country. Great numbers of the sick were intrusted to his management, affording ample opportunity for repeating his observations. In the course of this labor, his inquiries assumed a more systematic form; and from that period, to a considerable extent, he has been guided in his practice, by principles which he then began to understand, and which he now holds to be true.

For the space of forty years, he thinks he has paid more

attention to the surfaces of his patients, than has been the custom of any other physician of whose practice he has had any knowledge; and has been in habits of making more than ordinary use of artificial heat. The steam of boiling water at first, often served him a valuable purpose; when the sick could sit erect to receive it. When his patient was much enfeebled, he found this to be impracticable. Besides, he had learned by repeated experiments made on his own person, and by similar experiments and observations made on a great number of patients, that dry heat could be employed advantageously, at a degree of temperature which, if made by the steams of water, would inevitably scald the patient to death; and that in cases where a lower degree of heat might suffice, if steam were used, it universally produced so much moisture of the bed clothes and linen, as in a great degree to counteract his intention.

So far as he is informed on the subject, he first ascertained that dry heat, made to impinge upon the naked skin, by placing the patient, uncovered, near a brisk fire, or by holding a shovel of burning coals as near to the place affected as it could be borne, if sufficiently repeated, is the most speedy and effectual agent for correcting erysipelatous or phlegmonous inflammation; the mostim portant auxiliary in the treatment of an anthrax or an inflamed wound; and a remedy most decisive in treating inflammatory fever. From time to time he had tried various devices for the production and application of heat of high temperature, so as neither to scald the patient nor leave him wrapped in wet clothes. The various devices were more or less beneficial, according to the facility and extent of his approximation to the desired object. At length a perfect method of applying dry heat, became to him a very great desideratum. Afterwards he had the hap-

piness to hit upon the use of burning alcohol, and finally he invented an apparatus for conducting heat so generated, to the naked body of his patient.

During the whole course of this pursuit, he had no other design than that of improving his own practice. But the facility with which he has since been able to manage every grade of fever with which he has met, in at least four different States of the Union, has been such, that he cannot reconcile it to his obligations to humanity, to withhold from the public the result of his observations. He has therefore prepared the following treatise, in which the principles and doctrines, the origin of which he has thus briefly stated, will be found so associated and incorporated with some of the most important elements of the profession, and so elucidated by their practical application to a sufficient number of diseases, as to make his design intelligible.

By the employment of the apparatus, contrived as above stated, he soon learned that heat so generated and applied, with very little, and sometimes with no other aid, is effectual for correcting predisposition to disease; that by the same method, recent disease, when actually formed, is cured in the same decisive way; that the treatment thus far requires no considerable part of skill, but the necessary decision; no caution, but such as common sense will dictate; and that in the hands of physicians it places within the reach of the healing art, many cases of disease which for ages have been a reproach to the profession. To extend the knowledge of these facts, he made application to the patent office of the United States, and obtained a patent.

As the first and most promising step for bringing it before the public, he determined to introduce it into the army of the United States, then at war with Great Britain.

Having the advantage of a personal acquaintance with the Hon. Thomas Gholson, a member of Congress, he forwarded to him a letter, signifying the beneficial effect it would have, in the treatment of disease as incident to the army.

Doctor James Tilton, physician and surgeon general of the armies of the United States, happened to lodge in the same house with Mr. Gholson, and was made acquainted with the author's views. In a few days the physician general obtained permission from the honorable secretary of war, and he was invited to the seat of government. On his arrival, he had the satisfaction to find that preparatory measures were already in train for the accomplishment of his wishes. The final arrangement and result of the proceeding, will be seen in the sequel.

Washington City, April 7, 1814.

Dear Sir—Conformably to the orders of the secretary of war, you will be pleased to accompany doctor Adam Hays, an hospital surgeon, to Norfolk, in Virginia, and communicate to him and the surgeons generally of that post, not only the principles of your newly invented *bath*, but the method of application; taking care not only to show the cases in which it may be applied with advantage, with the manner, duration, &c., but especially to guard them against the misapplication, so as not to bring an useful remedy into discredit.

Agreeably to the secretary's order, your account for expenses, &c., may be presented at any time.

I am, dear sir, very respectfully,

Your most obedient servant,

James Tilton, P. S. G.

—

Norfolk, May 5, 1814.

This may certify, that in obedience to an order of the honorable secretary of war, and in conformity to the instruc-

tions of the physician and surgeon general of the United States, Dr. Sam'l K. Jennings has accompanied me at the post of Norfolk, Virginia, and satisfactorily demonstrated to me the principles and mode of making the application of his newly invented method of curing disease in a summary way, by means of his hot bath.

A. Hays, *Hospital Surgeon.*

Wilmington, (Delaware,) July 16, 1814.

Dear Sir—Agreeably to your request, I have no hesitation in giving you my sense of the utility of your newly invented hot bath, in the cure of diseases. I can only speak in general terms on a subject so novel; and, perhaps, the best method I can take for communicating my thoughts and reflections on the subject, is, by recounting the measures taken by the hospital department for the investigation of its usefulness.

By a special order from the secretary of war, I was directed to make the necessary arrangements for your admission to the hospital at Norfolk. By the same order, I was directed to send Dr. Hays, an hospital surgeon of great respectability, to assist and be witness at the experiments. The doctor reported favorably, and in that correct manner which gratified the secretary of war, as well as myself. He particularly recommends it in regimental practice, "from the opportunity it affords of meeting disease in its early stages." He recommends it in fevers, languid excitement of the surface, and diseases produced by suppressed perspiration. The doctor made experiments on about thirty cases, very much to his satisfaction, but has not exhausted the subject.

I have seen the bath applied in a few instances, and have had it applied to my own person. The ease and facility of the application, and the delightful sensations it affords, are greatly in favor of its general use. And when we consider the nervous and sensitive quality of the skin, and the importance of this emunctory, a flood of argument must arise, for the application of remedies to the surface of the body.

In the promised edition of your *explanations*, &c., besides

the theory and direction for correct application, permit me to request, that you will, by every possible precaution, guard us against the wrong application of so important a remedy.

With great respect, I am, dear sir,

Your friend and humble servant,

JAMES TILTON, P. S. G.

Doctor S. K. Jennings.

—

Having performed this service, the author determined on a visit to Philadelphia and New York. With this intention he addressed a note to the President of the United States, and obtained the following letter in duplicate—the one copy addressed to Dr. Physic, the other to Dr. Samuel L. Mitchell:

Washington City, August, 1814.

Dear Sir—Dr. Jennings has a medical invention, in the value of which he feels so much confidence, that he is anxious to present it to the consideration of the most enlightened of the profession. Although a departure in some measure from an established rule, I cannot refuse a line which may promote an opportunity for the explanations by which he wishes his invention to be tested. His benevolent character is a further apology for the liberty I take.

Accept assurances of my great esteem and friendly respect.

JAMES MADISON.

Dr. Physic.

Doctor Physic was in ill health, and unable to attend to the practice. He favored the author with an interview, however, and spoke very favorably of his invention.

Dr. Mitchell, without having received his letter, and without solicitation, enclosed under cover to the physician general the following:

New York, March 27, 1815.

TO DR. JENNINGS:

I this day, excellent sir, wrote to the physician general of the United States, my opinion of your mode of applying heat

to the external surface of the human body; and on Portio's method of directing its action upon the stomach and internal parts.

I have caused several experiments to be made with the alcoholic vapor, on the patients of the New York hospital. I am inclined to believe it is an efficacious and valuable remedy. It is remarkably neat. Nothing can be more handy. And really it in some sort enables you to place your patient beyond the climates, where snow and frost exercise their chilling influence, to the regions where solar warmth is more uniform and elevated.

It is a most important part of your heated air, that it is free from all smoke, soot and ashes.

I have considered the spirituous decomposition chemically. I have examined the metallic apparatus mechanically. And I have witnessed the action of the rarified vapors remedially.

Considering a torpor of the skin to be a cause or accompaniment of many diseases, and that heat is the best of all excitants, I am well satisfied that your method of applying caloric to stimulate the cuticular surface, is happily calculated to give relief in such cases; and produce extensive advantages to the sick and disabled, in many other maladies.

SAMUEL L. MITCHELL.*

About six months after the receipt of the above highly satisfactory letter, Dr. Mitchell again honored him with the following most definite testimony:

New York, 29*th October*, 1815.

Dr. SAMUEL K. JENNINGS:

Dear Sir—Since I wrote to you and General Tilton about the vapor bath, I have had many opportunities of trying its practical efficacy. I am more and more satisfied with the value of the remedy. It is so neat, so cheap, so handy, and so within the reach of every body, that it surpasses every thing with which I am acquainted, for applying caloric to the external surface of the human body. It is so capable of

* Dr. Mitchell was the very learned Senator of the City of New York.

conveying heat, so susceptible of a higher or lower temperature, and withall so well adapted to a longer or shorter continuance, that its power to be beneficial is considerably enlarged.

But above all, the caloric may be directed to a part of the body, or to the whole body, to a robust person or to one in the lowest debility, to an adult, or to an infant, with so much ease and benefit, that I really consider it one of the most happy expedients that a practitioner can employ.

For chills, torpors, and that apathy and langour of the cuticular surface, so often the forerunner or companion of fevers, it is preferrable to any other mode of applying heat. The warm bath, warm fomentations, and the vapors of hot water are very inferior to it.

The patients in our hospital are exceedingly pleased with it, and for myself, I explain it, I order it, and I recommend it.

Accept the assurances of my high esteem and regard,

SAMUEL L. MITCHELL.

Woodstock, (*Vt.*) *February* 20, 1816.

Dear Sir—I have not the pleasuse of a personal acquaintance with you, which might be agreeable; but I have become acquainted with your writings and improvements in the medical department, by the politeness of Mr. Strong, the former representative from this district. He sent me your apparatus for conveying the heat of burning alcohol to the bodies of the diseased, for which I feel very thankful to him and yourself. The very first reflection on the subject carried conviction to my mind of its utility, and I could but be astonished, that the use of it had never occurred to me before, considering I have been so intent on the subject of applying heat to the surface, for a series of years. I have made various trials of it, in different diseases, and find it a very valuable improvement.

At the time it was presented to me, I was engaged in writing on the epidemic diseases of this State, viz: in the summer and autumn of 1814. I have made favorable mention of your improvement in several places in the work, as a duty

I owed to society, and my acknowledgements of gratitude I now tender you.

The work I have alluded to, was printed last summer, at Boston, containing four hundred and twenty octavo pages. It is entitled, "Sketches of Epidemic Diseases in the State of Vermont, from its first settlement to the year 1815; with a consideration of their causes, phenomena, and treatment; to which are added, remarks on pulmonary consumptions," &c.

I was astonished to discover from your writings, the similarity of object and result, from different trains of reflection and investigation, and in remote parts of the union. Perhaps I am going too far in saying very different modes of investigation, they seemed in many respects similar.

It would indeed, be very desirable to me, if your apparatus could be circulated in this quarter.

Dear sir, with wishes for your prosperity and happiness,

I am with due respect,

Your ob't and very humble servant,

JOSEPH A. GALLUP, M. D.

—

The following is from Dr. Thacher, a very eminent physician of Plymouth, Massachusetts, who is the author of a work, entitled the "*American New Dispensatory*," as also of another, "*Observations on Hydrophobia*," both of which have done him honor. He was then engaged in the publication of a work entitled "*American Domestic Medicine*," which had much excited public expectation, and proved to be a very respectable production.

Plymouth, (*Mass.*) *March*, 17, 1816.

Sir—Having been apprized that you have invented a method of communicating heat by means of a spirituous vapor bath, I take the liberty of addressing you on the subject, and the enclosed prospectus will explain my views. I am solicitous to make my intended publication a medium of every improvement and discovery relative to practical medicine; and if consistent with your arrangements, to favor me with

a short sketch of the principles and utility of your method, within a few weeks, to be inserted in the appendix of my work; it will be very gratefully received, as it may premote the views of us both, and at the same time prove highly advantageous to the public.

From report, I am of opinion that your invention is extremely well calculated for the purpose intended, and that it ought to be more generally known in this part of the country. I have not been fortunate enough to meet with either your publication or apparatus, and if any arrangement could be made for the purpose, it might be in my power to extend the employment of it in this vicinity.

I am, respectfully,

Your obedient servant,

JAMES THACHER.

Dr. S. Jennings.

A sketch of the author's views was forwarded and published in the appendix of the American Domestic Medicine.

Three of his fellow citizens, very respectable physicians, unsolicited, favored him with the following letters:

Lynchburg, March 1, 1814.

Dear Sir—I take a pleasure in informing you, that for the last five or six weeks, I have applied your hot bath with evident good effect, on a great number of my patients—indeed I think it a most valuable acquisition to the catalogue of medical agents. The principles upon which it is used, only want to be known, to bring it into esteem and general use. Out of the many cases to which I applied it, for brevity's sake, I will select the following:

1. A case of hepatic state of fever.*—This was a lady, who, before I was called on, had been treated in the usual way, by her attending physicians—bleeding, cathartics, a blister on the part affected, antimonial mixtures, &c. had been tried. I found her with cold extremities and surface; fixed pain about the region of the liver, attended with cough,

* Dr. Cabell was a pupil of Dr. Rush.

general debility, and a feeble pulse. By the use of your bath, and a few small doses of calomel, with pectoral febrifuges, she was soon restored to perfect health.

2. A case of inflammation of the stomach and bowels.—It was a desperate one. This too was a female case, whom I found on visiting her, with cold extremities and surface, violent pain about the region of the stomach and upper bowels, with langour, faintness, and scarcely a perceiveable pulse in the radial artery. In this situation she continued nearly two days, notwithstanding cordials, opiates and cathartics, were administered, and a large blister was drawn upon the region of the stomach, and two upon the extremities. No passage could be procured, or general excitement raised on the surface. I applied your bath, and continued its application till a general diaphoresis was produced, and kept up for some hours, soon after which a passage was effected by ordinary means. I then used it periodically, so as to keep up the excitement on the surface till the patient was relieved. I confidently believe this woman would have died, had it not been for the aid of your bath.

Yours, respectfully,

JOHN I. CABELL, M. D.

Lynchburg, April 3, 1814.

Dear Sir—Having used your bath with decisive advantage to several patients, I cannot but regret that any one should so far mistake your object as to suppose that you consider it a specific. Having for four years past received frequent communications from you, explanatory of your experiments and observations upon the surface, and of the probable benefits to be derived from a more perfect method of applying heat, I am in duty bound to offer you my little influence in opposition to such illiberal insinuation. I know that your invention is the result of much philosophical inquiry, and promises great good to the community, as one powerful auxiliary in the cure of disease. And I know, moreover, that it may be so used, as, in many instances, pleasantly to supersede the use of other agents, which are loathsome in their administration,

and, more or less, deleterious in their effects upon the system. Permit me to narrate the circumstances which attended a single case, which I treated upon your principles. It was an instance of a most painful dismenorrhagia, protracted to the length of five days, with frequent faintings, and continued watchfulness. On the fith day she became perfectly delirious, with a pulse beating one hundred and twenty in the minute, and her extremities cold. At this stage I was called in. I immediately exhibited an anodyne, which was rejected. An attempt was then made to compose her stomach with cordials, intended to be preparatory to the trial of another opiate. The attempt proved abortive. By this time three hours had passed away in painful anxiety, every moment hoping to see the stomach prepared to receive such agents as appeared to be necessary. Under these circumstances, I most willingly availed myself of the genial heat of your bath; first applying it to her lower extremities; and so soon as her feet were well warmed, removing it to her stomach, where its powers were concentrated, until a general but moderate diaphoresis was induced. Before the operation was ended, the delirium went off, and the patient dropped into a pleasant sleep, and rested composedly for the space of two hours.

An opiate was then exhibited, which was retained by the stomach. Medicines, such as are ordinarily used in these cases, were afterwards advised, and the bath was repeated the following evening. In ten minutes after the repetition of the bath, the patient broke out uncommonly thick with the measles.

I was informed that she had been exposed to the cold for twelve hours, about the time she expected to be in delicate health, and the immediate effect was such as I have described. Till convinced by the fact, her friends were fully of opinion that she had had the measles years ago. It is worthy of notice, that so completely was the surface abandoned by the excitement, so extensively was it locked up in the system, that she had none of the ordinary appearances which usher in the measles. Neither high fever, cough, nor sore throat

attended her case. There was indeed, an alarming deficiency of animal heat—and I am confident, without the influence of artificial heat, to that extent, and with that decision which your bath only could have furnished, this patient would have died, and no one would have suspected the true nature of the disease by which her dissolution would have been effected.

I am yours, respectfully,

GUSTAVUS A. ROSE, M. D.

P. S.—It is a certain fact, that the sleep was induced exclusively by the bath. The first anodyne dose was given in form of a pill, which was seen when it was thrown up.

G. A. ROSE.

Doctor S. K. Jennings.

Lynchburg, July 17th, 1815.

Dear Sir—Every day gives fresh proofs of the value of your bath. In two violent cases of spasmodic croup, I effected a cure with it in twenty minutes. Calomel was exhibited after the spasm was overcome.

Mr. S. Barnard, after working steadily during a warm day, was seized at night with severe spasm; his face was quite distorted when I got to him, and he had lost the use of his superior and inferior extremities; the muscles concerned in respiration, were so far deprived of power, that he breathed with difficulty, and those of the tongue so severely paralyzed, that he could scarcely make himself understood. The bath was applied, and it relieved him in a few minutes. He took a cathartic that evening, and was quite well the next day, except the soreness which was consequent upon the violent contraction of the muscles.

I have applied the bath in the late epidemic, (*Peripneumonia Typhoides;*) in most cases respiration was immediately relieved by it. Where suffocation was threatened from a swelling of the throat, the bath was of great benefit. It was associated, however, with bleeding, blistering and cathartics. By warming the surface, the determination was changed, and in all slighter affections, the engorgement of the lungs

readily overcome; but in the more violent cases, it was necessary to keep the bath in operation until quite a tense action was induced, after which the lancet could be used with safety, and the lungs more effectually relieved. Where the excitement had been equalized by the use of the bath, the balance was maintained by blistering with a peculiar facility and in many cases blisters were not necessary. In all these cases the bath was used as an auxiliary, together with other medicines. Among others, I also was seized with this disease last fall, and in the course of an hour respiration became so difficult, that I began to apprehend very serious consequences; my pulse was small, feeble and frequent, and my veins sunk. I went to bed, but could lie only on my back; the bath with two cups was put in operation at my feet, and kept there for nearly an hour. By this time my pulse became full and bold, I breathed with comparative ease, and could lie on either side. The bath was now changed, and the heat directed to the affected side, for thirty minutes, when my pulse became tense: I then drew ten or twelve ounces of blood, and after remaining an hour longer in bed, arose, put on dry linen, and went about my ordinary business, suffering not the least inconvenience, except from a slight stitch in my side.

The bath has been used by me in some cases of puerperal fever. I find that stimulants may be administered with greater safety when it is applied; and in some other forms of disease, there appears to be less hazard in the exhibition of opiates, as they are rendered more diffusible by the bath, and consequently less disposed to seek an improper determination.

Wishing that the powers of this useful invention may be more generally known,

I remain your ob't

WILLIAM OWENS, M. D.

Doctor S. K. Jennings.

The following letters were sent to the author, by Doctor

Sargent, a respectable physician, and a minister of the Methodist Episcopal Church of Philadelphia:

Philadelphia, August 10, 1814.

Dear Sir—On Sunday evening last, I was called to visit a lady at the corner of Market and Eleventh streets, who on Friday evening previous had been violently attacked with asthma, and when I saw her, was still laboring under much difficulty of breathing, with her face flushed, and great pain in the head, and right side. I immediately applied your patent bath, and in about twenty minutes produced a very free perspiration, with an immediate mitigation of the distressing symptoms. After this application, I gave a teaspoonful of elix'r paragoric, and no other medicine; expecting however, that she might possibly require some bleeding in the morning. Indeed I would then have bled, but wished to give the bath the fullest trial, to see what its effects would be, without other aid. I saw this lady at 6 o'clock the next morning, and was much pleased to find her entirely relieved, insomuch, that I thought any thing further unnecessary, except a little of the brown mixture as an expectorant. The lady remarked with surprise that the pain in the side had also left her, which, in every previous attack, had uniformly remained some days after all the other symptoms had completely subsided.

Yours with esteem, &c.

THOMAS SARGENT, M. D.

Dr. S. K. Jennings.

—

Philadelphia, August 3, 1815.

Dear Sir—A very respectable lady, of the Society of Friends pronounced by her physician in Jersey, to be in the last stage of pulmonary consumption, came here to place herself under the care of Dr. Wistar. But hearing of me, and of *your bath*, placed herself under my care. I fully expected she would not survive one month; such were her symptoms and appearance, especially, when she informed me, that she had lost three sisters and two brothers in that disease. Not-

withstanding all these discouraging circumstances, I commenced, and by day gave her the muriatic acid, as you advised, and by night Jennings' Vapor Bath; and by the blessing of God, in six weeks sent her home, not barely recovering, but quite well.

The lady to whom I gave the bath in August, 10th, while you were here, in an attack of asthma, has had no return of it since. This I think very singular, as she had been subject to returns of the complaint every three and four weeks, for six or seven years past; she has also recovered her flesh and general health, to all appearance. I lately made the application to a Mr. Davies in Market street, who for more than a year past, has had violent spasmodic affections of the kidneys. In a few hours after the application, he discharged a small stone, about the size of a pea, which, I would judge must have been formed in the pelvis of one of the kidnies.

Yours in love, &c.

THOMAS SARGENT, M. D.

Doctor S. K. Jennings.

—

The following letter is introduced in this place, on account of the variety of the cases, and the efficiency of the remedy in the hands of a very respectable citizen of Virginia, who had no pretensions to medical science.

Fauquier Court House, August 2d, 1815.

Dear Sir—If you could have furnished me with the bath and explanatory pamphlets, in my opinion I could have disposed of from fifty to one hundred since last fall. I have made use of it constantly in my family for ten months, in the commencement of all colds, and in almost every instance have found it very beneficial indeed. Most diseases seem to be produced by cold, and on immediate application it checks the disorder in an agreeable and pleasant manner.

I am myself very subject to taking cold, and have applied it constantly, and derived great benefit. I am the more pleased with it on account of the pleasant sensation it produces,

contrary to the expectation of a person never having experienced it.

I have found it to produce wonders in my own family in the rheumatism, and in the bilious fever; and in the cholic, among some of my neighbors—where they could get relief no other way. Some seemed to be in such an agony, as if they must die, and when the bath was applied, and a profuse perspiration was produced, they were immediately relieved.

I attended a neighbor not long since, who was suddenly taken with a violent pain across his breast and shoulders, so that he could not turn in his bed. I applied the bath locally, extending and continuing the heat until he was very warm and wet. He was relieved. In fact, in a few hours was out of bed and in health. Really such is my opinion of this invention, that I would not take five hundred dollars for the bath, could I not get another. Some weeks past I had a violent cold, was so hoarse and had such a cough that I could scarely talk. I dreaded the application of the heat on account of the very warm weather; not having tried it in the summer till then. But to my surprise it was agreeable, and the hoarseness was removed immediately. The cold broke, I discharged the gathering mucus and was shortly relieved. It certainly would be a great benefit to the world, was its value known, and it was brought into general use.

I am, with great respect,

Your obedient servant,

THAD'S NORRIS.

—

James Mann, M. D. Hospital Surgeon of the army of the United States, in a work published by him in 1816, (page 182,) says:

"Experience has demonstrated, that the vapor bath of Doctor Jennings is superior to any mode of removing rheumatism.

"Without detailing that train of reasoning by which he

supports a theory, somewhat peculiar to himself, of the causes of diseases, and their most appropriate mode of treatment, especially when supervening with most morbid symptoms, we shall merely say; that diseases attended with general coldness of the body, local or more universal pain through the system, torpor and mental derangement, in which the patient, if not immediately relieved, expires within two or three days, often within the first twenty-four hours, have raged in these regions. The insuperable coldness and torpor which exists in such cases, have led scientific physicians to restore heat to the body by artificial means. For this purpose, the warm water bath, billets of wood heated, hot ashes, bladders filled with hot water, &c., according to the fancy of the prescribing physician, have been applied, in various ways, to the body. In some instances, these warm and hot applications have been followed with success; while in others, they have failed; not because the intention of the application was incorrect, but because it was not completely fulfilled. The moisture which is attached to the body and the surrounding clothes, frequently counteracts all the benefit derived from the heat communicated, by favoring its speedy evaporation from the body; consequently, the patient, in a short period, is found as cold and as torpid as he was previous to the employment of those heated applications. In these cases internal stimulants, such as ardent spirits, have been resorted to, with effects more frequently dangerous than salutary. They induced higher degrees of excitement in the larger internal vessels, and in some important viscus already in a gorged state, without being capable of extending their influence to the extreme vessels of the skin.

"Dr. Jennings' vapor bath remedies the evils which are necessarily connected with the usual application of heat; as its effects are more general, and are diffused throughout the system, establishing a more equable excitement, without the hazard of exhaustion which follows the employment of a water bath heat in consequence of its sudden evaporation.

"A full knowledge of his treatment cannot be obtained,

except by reading the whole work, which is scientific and incomparable."

At the close of 1820, the author having exerted all his influence, and devoted five years to the accomplishment of his purpose—that of making known to the community the value of his discovery, he discontinued further effort, in the hope, that it would make its way without additional pains.

Having been disappointed in this hope, in the year 1843, he made application to the Congress of the United States, and the following act was passed in his favor:

An Act for the relief of Samuel K. Jennings.

Sec. 1. *Be it enacted, by the Senate and House of Representatives of the United States of America in Congress assembled,* That the Commissioner of Patents be, and he is hereby directed to renew, for the period of fourteen years, the letters patent granted to Samuel K. Jennings, of the city of Baltimore, in the year one thousand eight hundred and fourteen, for an apparatus for the speedy generation and convenient, prompt and agreeable application of heat to the human system; and that he embrace in said renewal of letters patent, the improvement subsequently made by said Jennings in its mode of application; subject however, to the rules and usages of the patent office, and all its provisions, except as aforesaid, of the act entitled "an act to promote the progress of the useful arts," and all acts in addition and emandations thereto.

Approved, March 3d, 1843.

In conformity, therefore, with the directions in the said act contained, I, Edmund Burke, Commissioner of Patents, do hereby certify, that the patent therein described, is by the said act, renewed to Samuel K. Jennings, for the term of fourteen years, from and after the third day of March, one thousand eight hundred and forty-three.

In testimony whereof, I have caused the seal of the Patent Office to be hereunto affixed, this fourth day of April, 1844.

EDMUND BURKE,
Commissioner of Patents.

His motives and purposes remain the same. He has obtained a renewal of the patent, to secure to himself a reasonable compensation for the labor, time and expense, to which the work has subjected him; and relies upon the justice and liberality of his fellow citizens, for himself; and upon their humanity and benevolence, for the general relief and benefit of the sick.

THE AUTHOR.

A COMPENDIUM

OF

MEDICAL SCIENCE.

PART I.

Elementary Principles, developed and supported by Physiological and Pathological facts and observations, preparatory to a proper understanding of the following work.

CHAPTER I.

VITALITY, SENSORIAL INFLUENCE, STIMULI, EXCITEMENT, &c. &c.

M. Richerand defines life to be, "organism in action."*

Action, as exhibited in organic life, is an effect. To produce the effect, the organs must be endowed with an aptitude to be excited by appropriate agencies or influences, and these agencies or influences must be present, and make the requisite impression.

This aptitude to be excited, for the sake of intended distinctions, we will denominate vitality. By vitality, the several organs are made capable of performing the continuous and combined actions, required in organization. It must therefore receive incessant support; this support is furnished through the great nervous centres; and these are sustained by the circulating blood. Hence, vitality, though apparently inherent in the fibre, soon becomes extinct, if it be deprived of the circulation.

The circulation of the blood, so indispensable for the pre-

* Leibig's idea of vital force, vis vitæ, or vitality, is, that it is a "force in a state of rest."

servation of vitality, is effected and sustained, by concurring influences, which proceed from the sympathetic nerves and ganglia, and from the sensorium commune; those from the sympathetic sources, presiding over the organism and functions of the viscera; those from the sensorium commune, presiding over the entire organization.

These influences, being incessantly produced, are manifest under various aspects. They are manifest in maintaining vitality; in their effects on the functions; in excitement.

Vitality is modified by appropriate adaptations to the different structures, and their respective functions; so that the organs are prepared to correspond with the influences issuing from their nervous centres respectively.

Hence, each of the organs is dependent for the preservation of its vitality and of its organic motions and functions, on its connection with its own nervous centre—and the whole of them are adjusted in harmonious combination, and placed under a general influence, constituting them one organization.

This general influence may be denominated sensorial or nervous power.

For the purpose of elucidation, we invite attention to the conspicuous organs of sensation.

The eye is endowed with vitality, in a manner peculiar to its structure or organism, making it susceptible of impressions, which we refer to the rays of light. When such an impression is made on the retina, and is sustained and regulated by the requisite sensorial influence, there is furnished an occasion for the exercise of the function of sight.

The ear, by its peculiar organism, consonant vitality, and accompanying sensorial influence, is made susceptible of those vibratory impressions, which furnish occasions for the exercise of the function of hearing.

The schneiderian membrane, in like manner, is made susceptible of the impressions which furnish occasions for the exercise of the function of smelling.

The tongue and palate, of those, which furnish occasions for the exercise of taste, in all the various distinctions of that function.

And the skin, of the diversified impressions, denominated heat and cold, soft and solid, rough and smooth, wet and dry; in a manner peculiar to itself, furnishing occasion for the exercise of the function of feeling, in its various capacities.

Similar organic structure and sensorial correspondence, no doubt obtain, in respect of every important organ throughout the whole system; the sensorium commune,* &c., the sympathetic nerve and ganglia; the heart, the lungs; the stomach and smaller intentines; the liver, spleen, pancreas, kidneys, &c. &c.

But these references to the organs of sensation, &c. do not furnish notices of the sensorial influence in its co-operation with vitality, and producing the results which more particularly claim the attention of the physician. A sketch of it, as it is manifest in the organs and functions of sensation, &c. is submitted, with intention to exhibit one view of this difficult subject, in a light so clear, that it cannot readily be misapprehended.

The main object to be accomplished, is, to prepare the reader to form a correct estimate of the sufficiency or insufficiency of the current supplies of it, for the preservation of the vital motions and functions of the whole system, in view of that harmonious regularity, which is health; to perceive how great its power in instances of violent or morbidly directed action, when any organ is threatened with irritation or lesion,†—as also, what the degree of diminution, when the system may languish because of a deficient generation of it, in an instance of exhaustion.‡

* Sensorium commune, the anatomical name given to the nervous structures which have their centre in the brain and spinal cord.

† Lesion—Disturbed action, accompanied with injury done to the structure of parts.

‡ By exhaustion here, is meant the state of the system when worn down by disease.

The intended explanations, make it necessary to present the sensorial influence in association with excitement, and to consider the relation which obtains between them.

The heart, arteries, veins, lymphatics, glands, secretory vessels, &c. by their respective structures and inherent vitality, are prepared to correspond, each with its own appropriate sensorial influence, so as to perform its own peculiar organic action and function. By this provision, blood and lymph are elaborated and circulated; the various secretions and absorptions are performed, and the different excrements are eliminated. All these organic actions and functions, maintained for purposes essential to animal existence, are embraced in the comprehensive term, excitement.†

This view of excitement implies an incessant revenue of influences, inasmuch as every instance of action or motion, reports the arrival of the exciting influence and its evanescence or departure. Hence it is obvious, that the volume of influence in any instance under medical consideration, is estimated by the degree or force of the excitement.

It is commonly admitted, that the influences to which we refer, are generated and sustained by the brain and nerves.

It is not necessary to the intended explanations, to determine, whether the great nervous centres are to be considered as so many glands of superior importance, whose functions are to secrete and through the nerves to diffuse this influence to its various destinations; or whether they may not be organs, whose effects resemble electric, or galvanic apparatus, and in a manner, sui generis, collect and diffuse it;—or whether it be the result of some other provision. By whatsoever means it is accomplished, the volume furnished in any given time, by any particular system, must depend on the existing state of health, and be liable to vary with the changes

† All of these functional actions are instituted and maintained in a similar way, consequently, each action is an instance of excitement.

which health may undergo; and like the other phenomena of animal life, be sustained by the blood-making organs.

In perfect health, the supply will be adequate to the support of the organs and functions essential to the preservation of the system; and also to any temperate expenditure, in thinking, laboring, &c.* If, however, such expenditure should much exceed habitual boundaries, sleep becomes necessary to repair the effect of this excess.

In sleep, vision, attentive hearing, muscular exertion and exhausting thought, are suspended, and by this suspension a proportionate saving of sensorial power is obtained. Sleep is therefore truly said to be "tired nature's sweet restorer." Inasmuch as the organic motions, essential to the preservation of the system, are necessarily incessant, and to be healthful, must be equably maintained, a considerable diminution in the production of sensorial influence, must not only abridge the ability to labor, study, &c. but the resources on which depend the preservation of the vitality of the organs, may be very seriously affected.

We then have two correlative positions—

1. The excitement will be exalted above the natural degree of strength, if at any time, the sensorial influence be generated in greater than ordinary volume.

2. The excitement must necessarily be depressed below the natural degree of strength, if by any means, the influence on which it is dependent, be too sparingly furnished.

In order more perfectly to understand these positions, it is necessary to view them in connection with the doctrines pertaining to stimuli.† The natural stimuli consist of a variety of agents: the different aliments, atmospheric air, caloric, light, sounds, odors, muscular exercise, thought, the various passions and emotions of the mind—all these are liable to

* This association is based on the fact, that hard thinking exhausts sensorial power as certainly as hard labor.

† The word stimuli here, has reference to such agents as set up or increase the vital motions.

modification. To these we add caloric, as it exists in animal heat; the touch and motion of the blood in its circulation through the heart, arteries and veins; as also the touch and motion of the lymph and other fluids, secreted and deposited in their several receptacles; and the irritating touch and motion accompanying the retirement of the various excrementitious substances.

All these stimuli, acting on fibres, vessels and organs, duly charged, each with its own inherent vitality, are made tributary, as excitants, which invite or provoke the concurrence of sensorial influence, for the performance of the functions; and in view of the organization, the whole process may be considered as inseparable from the general idea of excitement.

If the vitality be regularly maintained in every part of the system, and the natural and ordinary stimuli be present in due order and proportion, the sensorial influence will be regularly issued and the excitement will be equable and healthful. Additional stimuli will elicit more than the ordinary influences, and be followed by an increase of excitement.

If such preternatural excitement be long continued, the system will be depressed into the condition, which we will denominate indirect debility. A state of things, in which it may be said, the nervous centres are tired; and consequently, for the time being, furnish a deficient supply of sensorial influences. Men staggering in consequence of the use of alcoholic drinks, or sleeping profoundly in a state of intoxication, exhibit instances of this kind of debility. A similar effect may be produced, by inhaling an atmosphere made preternaturally stimulant by being loaded with poisonous effluvia. Persons elaborating a full volume of sensorial influences, by exposure to such a state of atmosphere, may be subjected to the most abrupt occurrence of violent and fatal disease. This has been too often verified by imprudent strangers, coming from healthful regions, into districts infected with plague, yellow fever, typhus gravior, &c.

An atmosphere charged with a similar miasm, but of less deleterious power, and therefore acting a much longer time before its effects are made known, will wear down the energies of the nervous centres, and subject those persons who may be exposed to its effects, to that state of things, which is exhibited in a typhoid condition.

If any of the stimuli be abruptly abstracted or much diminished, the excitement will be reduced and for a short space of time, the sensorial influence will accumulate.* The condition of the system immediately after a decisive blood-letting or the operation of a very brisk cathartic, corresponds to this view of the subject.

A state of things very nearly analagous to the preceding, is produced by certain sedative powers, such as cold and fear. The system when shivering in consequence of exposure to cold weather, or trembling through fright, is explanatory of this view of the subject. In each of these instances, the sensorial influence is accumulated for a short space of time, during which, there exists that peculiar state of things, which we will denominate direct debility; a state in which the nervous centres retain the integrity of their organic structure and functions, but their influence over the action of the superficial capillaries is diminished, because of the reduced state of the vitality of those structures.

These positions, however, though certainly true, admit only of a limited and properly qualified application. That an increase of stimulus will produce a corresponding exaltation of excitement, is a truth. But if the stimulus be increased in a gradual manner, the system will acquire an abil-

* This accumulation secures reaction after appropriate and well-timed blood-letting, or a cold bath, &c. Moreover it will be shown by an experiment described in the following chapter, that a considerable volume of sensorial influence is employed, in maintaining the necessary excitement of the capillary vessels of the surface. Hence a suspension of the proper and full action of the skin, may be productive of alarming consequences.

ity to elaborate a volume of sensorial influence equivalent to the demand of this state of things, and if the exalted condition of the excitement be continued, it will become habitual and assume an aspect, analagous to that which is exhibited in health. This adjustment is accomplished, under the control of the same laws of the organization, by which it adapts itself to different climates and in every climate, to its seasons and modes of living;—by which also, it sustains itself, under the impositions of tobacco-smoking—chewing and snuffing—and dram drinking. If, however, the stimulant agent transcend a certain degree of activity, and be continued long enough, it may overleap the boundaries of the adapting power, and produce the condition of the system which we mean by indirect debility;—and the more deleterious the stimulant agent, the shorter the time required for the production of this effect.

When there is an inconsiderable abstraction of stimulus, or when exposure to cold is not long continued, and the sensorial influence, therefore, is not much accumulated, the system without artificial aid, takes on an increased excitement, and readily resumes an equilibrium. An accidental or intentional loss of a pound of blood, abstinence from a breakfast or dinner, a shower bath, a casual wetting by a shower of rain;—any such occurrence, may be met by persons in ordinary good health, without serious injury. But a sufficiently copious abstraction of stimulus, or a sufficient degree of cold too long continued, will produce a degree of direct debility, which will require a judicious interferenee of art, to secure and regulate the reaction, in a manner which shall safely bring about a restoration of a healthy excitement.

This statement perhaps needs qualification. A low temperature, such as is met in a cold dungeon or other cold and damp situation, might reduce the excitement of the capillaries so gradually, as insidiously to cripple the whole of the nervous centres, before the subject of exposure would appre-

hend danger. Jail fever or typhoid fever would be the probable consequence.*

Having thus far considered the four topics, vitality, sensorial influence, excitement, and stimuli, we will direct attention to caloric, as it is manifest in animal heat, which although it be co-ordinate with excitement, requires a distinct consideration; because it is subject to such variations, as often to require medical interference and skilful management.

As to the generation of heat in the system, the only certainty is, that it is maintained by the functions on which life depends. There is no perceptible difference between animal heat and that which is produced by ordinary combustion.

The former as well as the latter, is perpetually and uniformly evanescent, seeking an equilibrium of temperature with that of the surrounding atmosphere. Hence it is, that the body may be placed in a condition, in which the volume of heat generated, elaborated, or liberated, for the time being, may be insufficient. Every one knows the need of fire in winter and in damp weather; and of putting on clothing suitable for preventing the escape of heat, from the surface of the body.

Whether animal heat be sustained by a development of caloric in respiration; or whether it may be more the result of an agency, which according to the experiments and opinions of Leibig, is equivalent to combustion; which he has made very probable; or if it is co-ordinate with excitement, &c.; whether one or all of these considerations are involved in the production of animal heat, it must follow with equal certainty, that a deficiency of this essential element, will be concomitant with a deficient degree of excitement, and that whatever may be the relative degree of the importance of

* The author intends to convey the idea, that the sensorial influence is a floating power, which moves at the bidding of stimulation. The practice which we denominate counter-irritation, is predicated on this view of the subject.

maintaining a well-balanced excitement, by the judicious application or abstraction of stimuli, no less care is requisite for supplying by artificial means, a deficiency of heat, when the system is in a state of debility;—whether it be direct or indirect.

This subject claims the greater attention, because the feelings of persons in the condition under consideration, are generally fallacious. On a summer's evening, after a very sultry day, for some hours the heat is much more oppressively felt, after the thermometer is considerably lowered. The temperature cannot be higher in fact, when the thermometer marks it lower; yet sensation would make this contradictory report. It is not the heat of the surrounding atmosphere which causes the inconvenient sensation. It is the temperature of the blood, felt disagreeably hot, as it is circulated into the bloodvessels of the skin. The capillaries of the skin are excited by the heat of the day to an exalted degree, producing indirect debility in those structures, which is followed by a profuse and protracted perspiration. On the retirement of the sun's rays, these structures fall into a state of feeble excitement, which is accompanied by an increased sensibility to heat. In consequence of this state of things, the blood which carries with it the temperature of the central vessels, is unpleasant to the sensation of the skin. The state of the thermometer and the condition of the skin as felt by the hand of a bystander, concur in supporting this account of the matter. If any man doubt the testimony of these two witnesses, let him try how exceedingly pleasurable will be the relief, which a hot bath never fails to afford, under such circumstances.

By great loss of blood or other considerable and sudden evacuation, the system is deprived of its due portion of excitement, and a similar state of the extreme capillaries occurs. The patient complains of insupportable heat; desires to be fanned, throws off all covering and calls for cold water and

cold air. His sensation of heat, is in like manner fallacious. He is distressed because of a deficiency, not an excess of heat. The condition of the fauces, corresponds to that of the skin. Hence, the more cold water he drinks, the more intense his thirst; like the thirsty sensation which follows the excessive eating of ice or snow in winter. In such instances, the intensity of the cold applied to the fauces diminishes the excitement and increases the sensibility of the blood-vessels of the throat;—this done, they feel the heat of the circulating blood.

Whilst thus in view of the skin, we can only express our regret, that anatomists nor physiologists, have as yet enabled us to determine, what proportion the skin and so much of the cellular structure as lies immediately subjacent to it, bear to the remaining soft solids.

As this inquiry has escaped the attention of writers on those important branches, a very great degree of certainty must not be expected; and in fact is not requisite for carrying out our intended explanations.

We will assume the hypothesis, that the skin and cellular structure, as they are spread out and exposed to the vicissitudes of temperature, constitute one fourth part of the soft solids. And when it is considered, that the bronchi and air cells of the lungs, and in fact, the whole cellular structure by the laws of association, may properly, in some degree, be taken into the account; it would seem, that our computation cannot be extravagant. Besides, the great vascularity of the skin cannot be doubted: although the most remote from the heart, whilst in a living state, no part of it can be divided without an effusion of blood. According to this estimate, external temperature may seriously affect "the strand upon which terminates one fourth part of the arterial blood, and upon which one-fourth of the venous ebb commences;—and upon which "repose the external sentient extremities, of the whole nervous system."

CHAPTER II.

AN EXPERIMENT CONFIRMATORY OF THE PRINCIPLES LAID DOWN IN THE FOREGOING CHAPTER.

When we rise out of bed on a winter's morning, after an agreeable night's rest, having slept in a room without fire; by a careful inspection of the skin, it will be found to be somewhat pallid, with the appearance which is called cutis anserina.* In this condition, if we approach near to a brisk fire, with the skin uncovered, the sense of heat will be very acute. Having taken a position at which the heat can be endured, but hot enough to exercise some degree of fortitude; in a few minutes the severity of the sensation will abate—the excitement of the skin will be increased, the capillaries will be filled, and the fulness of the veins will evince a great freedom of the circulation. Either the extinction of the sensibility, or an improvement in the radiating power of the skin, or these two circumstances co-operating, will make it practicable to retain the position much longer than the experimenter would at first suppose it could be done. Let the same distance be firmly maintained, turning from side to side for relief, as the heat shall seem to increase, and presently the skin will be reddened, and a removal to a greater distance, will become unavoidable—and if favorable arrange-

*Goose's skin. This appearance is consequent on the contraction of the capillary vessels, which in this condition are very empty of the circulating fluids. There is also some degree of spasm, partly from the same cause, but chiefly because of the increased vitality produced by sleep. Similar appearances may be observed, if in health, on any morning cold enough to produce a similar contraction of the capillary vessels. Cullen's spasm, so conspicuous in his theory of fever, is the same thing, as it respects the contraction of the capillary vessels of the skin.

ments be made for the purpose, the experiment will be followed by a free and agreeable perspiration.

About the time when the heat becomes insupportable, in addition to the redness of the skin, the pulse will become frequent, accompanied by a throbbing of the arteries of the face, the temples, and the hinder part of the head; making it manifest, that the excitement of the surface is exalted much above its ordinary state. The increased frequency of the pulse, shows, that while the superficial capillaries are excited by the agency of heat, the power of the heart and central vessels is proportionally diminished.* So effectual is the above experiment, that, whosoever shall have tried it properly, will admit, that an excitement of the capillaries thus suddenly produced by the agency of heat, must check upon the stock of sensorial influence, in a proportion, corresponding to the computation which we have made in regard of the skin; and if so it is a vastly important fact, that the physician can imperiously and safely coerce, one fourth part of the power which may be expending itself in morbid action upon the central vessels, and direct it upon the surface; and can maintain this superficial action long enough, to subdue the general tendencies to irritation, or lesion.

But to return to the experiment. The sensibility to heat, which is felt so acutely upon the first approach to the fire in the morning, is consequent upon an exalted condition of the vitality of the skin through the instrumentality of sleep.

The agency of the heat in the course of a few minutes, diminishes the sensibility but increases the excitement of capillaries. By this fact it appears, that the exalted sensi-

* The frequency of the pulse denotes a corresponding degree of debility in the heart and arteries. By the agency of heat, the capillaries are expanded, giving admission to an increased quantity of blood. The increased excitement of the surface calls off much of the sensorial influence, which otherwise would exert itself upon the heart and arteries. Hence the heart's power is diminished, as the action of the superficial capillaries is increased.

bility, tending to a condition of irritability, is corrected by timely excitement.

By continuing at such a distance from the fire, as at the first is but little uncomfortable, an insupportable sense of of heat will presently be produced. The sense of heat which recurs when the skin is reddened, proves that the presence of the blood accompanying the increased excitement of the capillaries, increases the vitality of the structures. This subsequent occurrence of the sense of heat, differs very materially from that felt in the first instance, and is the result of the increased action and consequent accumulation of blood in the capillaries; and with the exception, that the arterial and venous portions of the structures, are so equally affected that upon the retirement of the external heat, which is the exciting cause, there is an immediate return to a healthful condition, the unpleasant sense of heat felt in the skin, is similar to that felt in inflammation.

CHAPTER III.

DESCRIPTION AND EXPLANATION OF DISEASE, WHEN CONSEQUENT ON EXPOSURE TO COLD OR INCLEMENT WEATHER.

With the intention to show the practical utility of the foregoing elementary principles, we will turn attention to some of the leading phenomena, which are present in the forming state of disease, when consequent on atmospheric influence.

An imprudent exposure to cold and damp weather, diminishes the excitement of the capillary vessels of the surface, and consequently accumulates the sensorial power more or less, according to the vigor of the patient, and the time and other circumstances attending the exposure. Hence it is, that disease, when the consequence of such exposure, assumes the most violent forms of simple inflammatory action. In many instances, if the subject of exposure be robust and in full health, the ultimate effect will be, a pleurisy or pulmonitis.*

If corpulent, or one in the habitual use of ardent spirits, the effect will wear a similar aspect, but will be modified by the temperament or habits of the patient. In an instance of corpulency, the energies of the system are ever on the stretch, for the support of so large a bulk of flesh. And the sensorial centres of the drunkard, are constantly oppressed

* It will be perceived by the reader, that this last position is predicated on the belief, that the sensorial influence which governs the action of the vascular system, if not expended by an equable circulation, and especially if the temperature of the skin be a long time so low as to prevent its expenditure in maintaining a full excitement of the external capillaries, it is concentrated, in accumulating volume and power, upon the heart, arteries, lungs and other important viscera.

by the stimulant power of his poisonous beverage. In these and particularly the latter, we do not expect the same bold arterial action, which is displayed in cases of pleurisy or pulmonitis in persons of common stature and temperate habits. They more frequently become the subjects of typhoid action.

Exposure, accompanied with protracted exertion, such as walking, riding on horseback, or laboring so as to induce excessive weariness, because of the exhaustion of the sensorial influence, is often productive of disease of inflammatory tendency, though not determining upon the vital organs; such as rheumatism, catarrh, &c. in winter and spring; and dysentery and other enteritic affections, in summer and autumn. In such instances, fatigue induces general debility, which continues till gradually corrected by rest. Whilst debility continues, in some subjects, the action of the extreme capillaries continues to be deficient, and the vitality of the fasciæ and cellular structure of the extremities becomes exalted to the condition of irritability. As the sensorial power is regenerated, irritable surfaces take on excessive, that is morbid action, which continues until the peculiar kind of irritated condition, which is rheumatism, is established. In others, the mucous surfaces are involved; as in cases of catarrh, and take on irritated action. And again, in others, similar circumstances tend to the establishment of irritated action on the mucus surfaces of the intestines. So also, old persons whose mucous surfaces are enfeebled through age, and infant children of very delicate and phlegmatic temperaments, and especially if fat, by exposure, without fatigue, are readily subjected to bronchitis.

In all these instances of disease, although they obviously differ in respect to the various structures upon which they commit their ravages, still in their general characteristics, they are similar. The only real difference, is, the result of the different condition of the surfaces, which become the seats of morbid action, and that of the sensorial influence, by

which the morbid action is sustained. Catarrh, cynanche tonsillaris, croup and affections of minor importance; as, head-ache, tooth-ache, &c. are all consequent on accumulated vitality, that is, irritability of the respective structures, or surfaces, which become the seat of diseased action, and are continued by the uniform tendency of the sensorial influence to obey the call of irritation. In all these instances, the common notion is, that the subjects of them have taken cold, and common sense, in this, as in most other things, is according to truth. Cold alone, by its sedative influence, acting on the system in other respects in good health, is the only agent concerned in effecting the predisposition, and the disease is violent reaction, the natural result of a morbid accumulation of vitality, which invites and provokes a determination of sensorial influence to the irritated surfaces, which are the seats of these diseases.

CHAPTER IV.

EXPLANATORY OF IDIOPATHIC FEVER, OR FEVER, PROPERLY SO CALLED.

The preceding chapter is an attempt to explain disease, as it is suddenly induced by change of temperature, in persons previously in good health, in healthful seasons and climates. In respect of the local affections, croups, catarrhs, rheumatisms, tooth-ache, &c., although the particular surfaces and structures which are affected in these instances, by the agency of cold, have their vitality increased so as to produce alarming local irritation, yet the sensorial influence in the aggregate, is not sufficiently accumulated, to produce great excitement throughout the whole system.

In sickly places and seasons, the atmosphere is charged with poisonous effluvia, malaria, which, in co-operation with the heat of summer, stimulates the system into a state of indirect debility; consequently, the functions are imperfectly performed; the skin falters in common with the other organs and structures; the blood is imperfectly elaborated; the nervous centres are not fully sustained, and the censorial influence is generated too sparingly for the demands of the system. Hence the vitality of the capillaries, is reduced below the grade of health. It follows, that the natural stimuli are not felt in their ordinary degree, the excitement languishes; animal heat, which is dependent on excitement for its due degree of temperature, is diminished; and the whole current of the circulating fluids, moves slowly. Those branches of the sanguiferous system, the farthest removed from the heart, must necessarily languish most. The capillaries of the skin, therefore, must not only receive a deficient supply of blood,

but the functions of that structure must be imperfectly performed. The sustaining power of the system, by which it defends itself against the hurtful influence of reduced temperature, during cold nights and wet weather, is the excitement of the skin; which, in these instances, is much below the grade of health. If there should occur any occasion for a person in such a condition, to make a little more than ordinary exertion for the space of a single day, or even for a shorter period, it may so far check on the sensorial sources, and so reduce the force of excitement, that the cold of one succeeding night, or of one rainy day, may subject the system to an attack of fever. The greater the debility under such circumstances, the more morbid will be the effect of exposure to cold; and vice versa. The first grade of fever, the result of this state of things, is intermittent, the second is remittent, the third continued, synochoid or typhoid.

We learn from anatomy, that the ramifications of the nerves correspond to the branches of the arterial system. Perhaps it is sufficiently evident, that every artery, extending to the most minute capillary structures, has its accompanying nerve. We may then infer, that the arterial action is affected by the influence of the nerves, and in turn, the power of the nerves to maintain their influence over the arterial action, is materially sustained by the presence and healthful condition of the blood. Every branch of the nerves has connection with its respective sensorial root;—the cerebrum, the cerebellum, the spinal chord, or the ganglia with their sympathetic apparatus. As vegetation is sustained, partly by the elementary principles taken up by the roots of the trees, shrubs and plants, but more by those inhaled from the atmosphere, through the functions of the foliage;—so the nerves are supported, partly by influences derived from their respective sensorial roots, but more by the etherial principles and genial warmth, continually conveyed to them by the circulating blood.

The blood is perpetually generated and kept in healthful condition by the agency of organs and functions; is elaborated out of the materials which constitute the aliments, simultaneously receiving such other etherial influences from the atmosphere, as are necessary for its perfection, by the instrumentality of the liver, lungs and skin, being relieved of its carbon, by Liebig's combustion. Hence it is, if the blood be too highly charged, with the elements which afford nutriment and comfort to the sensorial sources and the nerves, the sensorial influence is speedily elevated. So also, a mere excitant, by producing a more than ordinary celerity in the circulation, for a certain length of time, will induce a similar elevation. A glass of good old wine in aid of an agreeable dinner, will furnish an example explanatory of the first position. An inhalation of nitrous oxyd gas, a moderate portion of dilute alcohol, smoking a cigar, an appropriate dose of opium, or the respiration of an atmosphere impregnated with certain gases, furnish occasions explanatory of the second.

In conformity to the principles already submitted, the nervous influence may be elevated in either of these ways, without immediate injury; and perhaps so as to be perfectly innoxious; if it be not too much elevated, nor be too long continued; and an habitual exaltation may be wonderfully repeated, if its effect be directed into the channel of the voluntary motions. A hammerman, in one of the forges of North Carolina, was accustomed to drink two quarts of common rum or whisky, and prepare his ton of bar-iron, per day. And a system trained by habit, may for a long time resist the destructive agent, alcohol, even if permitted to wear down the effect of the stimulation, through the channel of vascular action. This is done every day by the sleeping drunkard. But any such instance of the exaltation of the sensorial influence, not being habitual, is followed by an irritable condition of the sanguiferous system. This state of things befalls

those who are incidentally drawn into a debauch, or are by any means considerably excited.

If an excess of food be repeatedly taken into the stomach, of course furnishing an excessive supply of nutriment, the blood-making organs and functions will become embarrassed, and the blood will be imperfectly elaborated. The circulation will then become languid, because of its too great volume, and not being kept in a state of perfect assimilation, it will not furnish the sensorial sources, with the necessary supply of the elements, in the condition required for the elaboration of the sensorial influence. Hence the heaviness and dullness, consequent on repeated gluttony; presenting the condition of the system, which is denominated plethora; and when in this state, any exertion by which considerable fatigue is superinduced, any protracted exposure to cold or wet weather, or sleeping in a cold apartment, without the necessary bed-clothes, will in most instances, produce a dangerous concentration or introversion of the blood, upon the blood-vessels of the abdominal viscera; and unless the error be speedily corrected, it will be followed by fever with irritation of some one or more of those organs; and this state of the abdominal viscera is the most conspicuous characteristic of bilious fever. This morbid state of things, when consummated, is followed by that form of fever that is now called congestive. In this fever the circulation is so languid and the blood so deteriorated, that in many instances, it is irretrievably fatal.

The importance of this view will be the more obvious, when it is considered, that the condition of the blood is materially affected by the state of the skin; which at the same time that it constitutes a covering for the whole body, performs many functions, one of which is analogous to that of respiration. Presenting the blood in a condition of correspondence with the atmosphere, through its instrumentality, a supply of the necessary etherial influence is furnished, for the

support of the capillaries which give origin to the veins. As the etherial influences which unite with the blood, in its circulation through the lungs, supply the pabulum of vitality and sensorial power to the arterial system, so corresponding influences, received through this function of the skin, is necessary in aid of the more copious provision made by the instrumentality of the lungs, to maintain a healthful condition of the returning circulation. A state of plethora is the more injurious, therefore, since, at the same time that the blood-making organs are inadequate to the task imposed on them by the increased volume of the blood, the introversion which accompanies it, greatly increases the thraldom of the functions of the viscera, by preventing the auxiliary operations of the skin.

Intense cold acting for a short time, on a system well sustained by sufficient vitality, does no injury. Its effects are salutary, being speedily corrected by a perfect reaction. But a protracted exposure to a moderate degree of cold, insidiously brings about a torpid condition of the capillary structures of the surface, with a simultaneous diminution of excitement. A corresponding volume of the sensorial influence is detained and accumulated in the system, and if it be continued, will subject it to a violent attack of disease. This is the state of things in almost every case of inflammatory fever, as it occurs in the winter and spring seasons of the year. The sensorial influence is so amply furnished, that exposure to the weather for one day, is sufficient to produce an attack of pulmonitis; especially if the exposure be accompanied by exercise of a kind to induce fatigue, and the patient inconsiderately retire to bed without having established the necessary reaction. The excitement of the cuticular surface, is so much diminished by the fatigue, that the capillary structures become constricted. When the system shall have rested, the sensorial influence will be accumulated and the nervous centres will be in condition to maintain it, at the

grade of full health: The constriction of the surface, places, perhaps, one-fourth part of the soft solids, in a state of preparation to resist a return of the blood, the absence of which is the cause of the stricture, and by the laws of association, the capillary structures giving origin to the pulmonary veins, will assimilate to that of the external surface. In this state of things, we have the extremities of the arteries, partially locked up by the stricture, and the skin contracted, constituting a perfectly fitting bandage, making universal resistance to the arterial circulation, whilst it simultaneously affords a corresponding assistance to that of the veins; and the necessary result is, an injected condition of the arterial system.

The aorta extends its branches throughout the whole body, spreading its ramifications over the entire surface, internal as well as external. The pulmonary artery, with an equal calibre, has all its branches confined within the limits of the lungs. The aorta receives the blood from the pulmonary veins, whilst the pulmonary artery is compelled to receive the larger volume sent up by the vena cava, from the entire mass of the body. It follows, therefore, with as great certainty as physiology can furnish, that the pulmonary vessels are particularly liable to painful injection by the stress imposed on the arterial system. The circumstances which attend on a case of pulmonitis, are in accordance with this statement.

It has been shown, that whenever there is a diminution of excitement, there will be an accompanying deficiency of animal, or vital heat. In the commencement of the attack, the skin is pale, constricted and cold; the lips and the skin surrounding the mouth and eyes, are livid; and the pulse is tense, contracted and frequent. In confirmation of the fact, that the pulmonary vessels are morbidly injected, the patient complains of a distressing sense of tightness and fullness of the chest; his respiration is hurried and oppressive; and in

the midst of these appearances, a lancinating pain is felt in the lung; which is followed by a cough and an expectoration, commonly more or less tinged with blood.

With these facts in view, we cannot doubt the truth of the position, that the pulmonary vessels are painfully injected, even to a degree of lesion sufficient to produce extravastation of blood; which is thrown off by expectoration. We then safely infer, that the lesion produced by the injection, constitutes the inflammatory point of this disease, and is the sole cause of its protraction. It is a well known fact, that all the other phenomena which mark an attack of pulmonitis, may occur, if the pain be absent, and all pass away without any considerable subsequent inconvenience to the patient.

The chill and shiverings, are necessarily attendant upon the arrest of the circulation, produced by the injection. The accumulated sensorial influence, having at the first determined its course of expenditure through the most direct and natural channel, the heart and arteries, being arrested in that course by the injection of the pulmonary branches, is abruptly transferred to the muscular structures. And this sudden transition, probably saves the system from the mischiefs, which might otherwise be the effect of an overwhelming revulsion of that influence.

Hence the shivering, so far from being an alarming symptom, affords proof, that the system is prepared to avail itself of this alternative for safety. By the convulsive effort set up in the muscular structures, a very rapid expenditure of sensorial influence is effected. Any violent muscular exertion, continued for a few minutes only, so exhausts the sensorial influence, as to make it difficult for the system to maintain the necessary motion of the heart and lungs; and if continued too far, the heart and blood vessels may fail to circulate the blood. This occurrence takes place, when a man, or any other animal, through fright, is run to death.

Pain, also, in a degree proportionate to its severity, effects an expenditure of sensorial power. So soon therefore, as the existing excitement, together with the muscular shivering, and pain, when present, have by their co-operation, sufficiently expended the sensorial influence, which is maintaining the injected state of the arterial system, the struggle subsides; the pulmonary veins give a free passage to the whole current of circulating blood; the chilly sensation retires, and the hot stage of the fever commences. The system, however, being highly charged with sensorial influence, the arterial action is still kept up with excessive force. The skin too, in its turn, from the same cause, becomes considerably excited.

According to this view of the events which occur in a case of pulmonitis, it would appear, that the blood vessels are liable to lesion, during the continuance of the chilly state of fever only; that the more highly the system is charged with sensorial influence in any given case, the more certainly a fever in such a case, will be ushered in with a violent chill and shivering; and that the greater the degree of exhaustion of sensorial influence in any given case, the more certainly it will commence without a chill or shivering. And finally, we may also infer, that pulmonitis, or any other similar affection, is the result of a mere reaction of the system, which, in consequence of the previous suspension of it natural motions, exerts itself with a violence too great for its own safety; a state of things in which, exalted excitement begins to play at the centre, while yet the capillary structures are in a state of torpor; and before they can be adjusted, so as to take on a corresponding increase of their functional action, and secure a free and equable circulation, the arterial system becomes injected to a decree of tension, which produces lesion.

Considering the violence of excitement exhibited in a case of pulmonities, which is a mere reaction of the system, without the concurrence of any preternatural stimulant power to excite or maintain it, what havoc might we not expect, should

a person predisposed to such an attack, quaff down a strong charge of ardent spirit? How imminent the danger, that the lungs would be engorged to an apoplectic state, producing a very sudden death.

In a similar way, a person fully predisposed to disease with accumulated sensorial influence, by coming into a city or district, where the atmosphere is highly charged with malaria, is liable to be seized at once, by the prevailing endemic, and in one of its most alarming forms. Such an individual, probably, at first would feel a degree of hilarity, as if he were under the influence of a glass of wine; but within a short time, he would experience lassitude, pains, rigors, chills, &c. all the symptoms which usher in an alarming disease. And if he should remain within the limits of the poisonous atmosphere, which shall have proved so dangerous a stimulant, it is not difficult to perceive, what must await him in the issue of the case.

The difference which is more particularly worthy of notice, between an ordinary case of pulmonitis, or other form of simple inflammatory disease, and one of a malignant fever, is, that in the former, an accumulation of sensorial influence prepares the system to assume an exalted state of excitement, and in course, when the accumulated power shall have been expended, it will be well disposed to resume its ordinary grade of action. In the latter, a deleterious stimulant coerces it, maintaining the elevation, till it produces a pernicious state of indirect debility. In the former, the degree of danger which accompanies it, will be measured by the degree of lesion which may be produced by the first exacerbation; which lesion constitutes its inflammatory point. In the latter, not only a similar degree of lesion may occur, but often, the most fatal congestions are established by the inevitable protraction of the paroxysm.

In considering a constricted state of the surface, as an inseparable incident in the commencement of fever, we are not alone. Dr. Cullen predicated his whole system of the theo-

ry and practice, upon this fact. His theories upon the subject of spasm are justly exceptionable. His attention to this fact, however, furnishes a strong evidence in our favor. And the detail of facts which distinguish his work, will continue to do him honor as an accurate observer of nature, till disease shall cease to commit its ravages upon the human body.

A constriction of the capillary structures, we have presented, as holding a conspicuous place, in producing that injected condition of the arterial system, which is the cause of pulmonitis, and of the chilling sensation and shivering, with which that disease commences. We now proceed to show the undoubted affiliation, which obtains, between this affection and an ordinary intermittent fever.

The primary, remote cause of an intermittent, probably is, that indescribable something, denominated marsh miasm. There may be a poisonous gas, which, combining with the atmosphere, so stimulates the system, as to induce a degree of indirect debility; but the amount of its agency has not been computed, nor the manner of its action defined. In regard of miasmatic regions, there is an obvious fact which particularly claims attention. In those districts of country where intermittents generally prevail, at the same time that the days are very warm, the nights are exceedingly cool, for the season of the year. The atmosphere is daily heated by the sun's rays, but the chilliness of the wet earth, together with the incessant exhalations arising out of it, afford such ready and perfect conductors for the escape of heat, that the sun is scarcely below the horizen, before the whole region is cooled. If then the marsh miasm as a stimulant, in conjunction with the heat of the weather, co-operate with fatigue, &c. to place the system in a condition of indirect debility, according to the degree of that debility, the capillary structures will be disabled, and the skin made more subject to the sedative effect of cold. The continued agency of the miasm, and the reiterated application of the sedative power of the cool night air upon the surface, will at length bring

about such a constricted state of the capillary structures, as shall be sufficient to subject the arterial system to a state of injection. We are not at liberty to consider the volume of sensorial influence in such a case, potent enough to exalt the excitement sufficiently to produce lesion. In that event, the result would be pulmonitis. It is rather probable, that it is less than is usual at the same season of the year, and in more healthful places. But the indirect debility, and consequent constriction of the capillaries, sooner or later bring about an injected state of the arterial system; and although the volume of sensorial influence, may be insufficient to to institute or maintain a reaction powerful enough to effect lesion, yet in consequence of the cold nights, the capillaries of the surface will become so liable to a state of atony and the excitement be confined within limits so narrow, through the compression made by the stricture of the skin, that an amount of reaction will be produced, sufficient for a temporary injection of the arterial system; and of course the appearances of the chilly state of fever; except only that no inflammatory lesion is produced. In consequence of the previous debility, the volume of sensorial influence is so much below the standard of perfect health, that the utmost exertion of the heart and arteries, fails to produce any lesion of the pulmonary vessels; and this last particular, constitutes the only important difference, between a paroxysm of an intermittent, and the first exacerbation of a pulmonitis. This will be made completely obvious, if we present a simple statement of the events as they occur in each.

A paroxysm of an intermittent fever is ushered in by the following appearances: langour, or sense of debility; a sluggishness; yawning or stretching; face and extremities pale; features shrunk; the bulk of the whole system seems diminished; and the skin of the whole body appears constricted, as if cold had been applied. The patient feels a sense of coldness, first in his back, and presently passing over his

whole body; till a general tremor of the limbs and rigor of the trunk are produced. As the sense of coldness commences, the pulse becomes small, frequent and irregular; the respiration contracted, frequent and anxious; and sometimes attended with cough, &c. These are the most conspicuous features which characterize intermittent fever, according to Dr. Cullen, the accuracy of whose description has been universally approved. Let us now attend to his description of a pulmonitis, (pleurisy.) "The disease," says he, "almost always comes on with a cold stage," and by a cold stage he means the entire description as given above. He proceeds, "and is accompanied with the symptoms of pyrexia." Let it be remembered, that Dr. Cullen avails himself of the circumstances and appearances, as they occur in an intermittent fever, as being explanatory of fever in general. Therefore, when he says "the disease almost always commences with a cold stage, and is accompanied with the other symtoms of pyrexia," it is his indisputable meaning, that a pulmonitis (pleurisy) comes on like a paroxysm of an intermittent. In what then do they differ? In nothing but the degree of force, which being greater in the one, produces lesion; which done, the case becomes a disease of the lungs, and is inflammatory, because of the lesion. Hence any explanation which can be satisfactory, as to the appearances of the chilly state of the fever, in the one, must be equally so in the other. A difference may be regarded with a reference to the remote cause in each. Cold alone produces the predisposition in the one case, accumulating the sensorial influence in a system armed with the whole stock of sensorial power. In the other, miasm induces debility, subjecting the system to a constricted state of the capillaries, by a degree and continuance of cold, which in more perfect health might be altogether innoxious. Cases explanatory of this affinity between a pulmonitis and an intermittent fever, are continually occurring in the marshy country near the sea coast; one

or the other of these two forms, is generally prevalent, following the seasons, in an order corresponding to the principles which have been submitted. The periodicity of intermittents, presents no serious difficulty in respect of these explanatory views.

If there exist in the case, sufficient energy for effecting an adequate accumulation of sensorial influence, every night to ensure a daily reaction, after the cold night air shall have exerted its sedative influence on the state of excitement, it will be an instance of the quotidian form. If it require two nights to charge the system sufficiently to bring on a reaction, it will be an instance of a tertian form. And if three nights be necessary to place the system in a similar condition, the case will assume the form of a quartan.

But we have respectable authority in support of the doctrine of lunar influence in the production of an intermittent. Doctor Jackson, by a record kept on his almanac, satisfied himself, that a considerable proportion of the cases which occurred through a season, commenced within seven or eight days of the full or change of the moon. Be it so, and in fact, it could not be otherwise, since there is no day, which is not within seven or eight days of the full or change of that satellite. It is a fact of common notoriety, that in as great a proportion of instances, as are equal to Doctor Jackson's cases, the weather is colder, and not unfrequently wet, within seven or eight days of the full or change of the moon. To the vicissitudes of temperature which attend on the phases of the moon, and to no other influences, are to be referred all the imaginary lunar agencies concerned in the production of fever. The numberless variations and modifications of intermittents, so far as they actually exist, are the result of various temperaments and their accompanying liabilities to such special irritations, as may be present at the commencement of the attack, or as may be superinduced by subsequent occurrences, mal-practice, &c. &c.

CHAPTER V.

THEORIES OF FEVER, CONCLUDING WITH WHAT THE AUTHOR THINKS APPROXIMATES TO THE TRUE ONE.

Dr. Cullen taught, that the first change induced in the animal system by the operation of the exciting cause of fever, is a diminution of the energies of the brain; that all the powers of the body and all the faculties of the mind;—that the functions of sensation and motion;—the processes of respiration, circulation and secretion, all fail or are diminished in the general debility;—that after a certain time, a morbid increase of some of the functions, especially of the circulation, takes place, with an augmentation of heat;—that these three states,—of debility,—of cold,—and of heat, bear to each other, the relation of cause and effect;—that the first state is the result of the sedative or debilitating influence of contagion, marsh miasmata, cold or any other exciting cause; and the subsequent states, the result of the first;—that the debility produces all the phenomena of the cold stage, and especially a spasmodic constriction of the extreme arterial vessels. "Upon the whole," says Dr. Cullen, "our doctrine of fever, is explicitly this;—the remote causes are certain sedative powers applied to the nervous system, which diminishing the energy of the brain, and thereby produce a debility in the whole of the functions, and particularly in the action of the extreme vessels." Here is a description of the events which occur in fever; but the attempt to account for and explain them, is altogether a work of imagination.

Dr. Brown, like his predecessor and preceptor, attributes all fevers to debility, and affirms, "that the distinctions which physicians have made about the difference of fevers,

are without foundation; that they are all the same; differing only in degree, &c.; the cause of all these diseases from the simplest and mildest intermittent, to the jail fever and plague, is the same with that of diseases not febrile; to wit, debility; differing only in this, that it is the greatest debility compatible with life, and not long compatible with it." This theory is very brief and apparently simple. It is, however, equally fanciful and unsatisfactory, as that of Dr. Cullen.

So late as the year 1829, from Dublin, from the largest hospital for the reception of fever cases in the British empire, a different doctrine was put forth by Dr. Stokes. "Common epidemic fever," says he, "especially when contagious, has not appeared to me, at any time, to be essentially inflammatory;—adynamic fever, a denomination of typhus fever, which I shall employ, as I have hitherto done, to express—the putrid or malignant fever of Sydenham;—the slow nervous fever of Huxham;—the nervous fever of common language;—the synochus, typhus mitior and gravior, of Cullen;—the jail and hospital fever;—the essential fever of the French;—the epidemic of the Irish writers;—the contagious of Bateman;—the typhus of Dr. Armstrong;—and the proper idiopathic of Dr. Clutterbuck; whether it exists separately or independently, or is combined with any other forms of febrile disease, sporadic or symptomatic, typhoid or adynamic fever, I consider to be generally symptomatic of morbid changes in the physical character of the blood." In inflammatory fever on the one hand there is increased action; on the other, debility is almost the immediate consequence. On account of this debility being an essential characteristic of typhoid fevers, I denominate them adynamic."

By this extract it appears, that morbid changes in the physical condition of the blood, in the opinion of Dr. Stokes, are produced by the causes which induce fever; in course, the morbid condition of the blood, in his opinion, must act as a secondary cause in maintaining the disease. This fault in the

state of the blood, is one of the morbid circumstances, which occur in the course of the formation and establishment of fever. The cause of it is specified, and its proper place in the train of events as they occur in fever, is assigned to it, in chapter IV.

The same doctrine was published by Dr. Baine of London. Dr. Clanny, however, taught somewhat differently. Instead of regarding a vitiated state of the blood as the essence of fever, he believes the proximate cause of it, to be a want of power in the system to form blood—"a cessation of chylification and consequently of sanguification. Chylification like secretion, is a function of the brain, which under peculiar states of the atmosphere is impaired, and in severe cases is suspended altogether. Hence, typhus fever."

But in opposition to all such views of fever, it is zealously and ably maintained, that fever is strictly a local disease, that it has its primary and essential seat in one organ, and that it consists of inflammation of that organ.

Dr. Clutterbuck, who may be regarded as one of the most distinguished advocates of this opinion, in one of the best works on the subject, contends that fever of every denomination and of every degree, is the result of inflammation;—that the appearances which have led to the conclusion that it is a general disease, primarily affecting every function of the body, are fallacious;—and that when strictly examined, it will be found, that all general or extensive derangements of the system, are referable to local disease in one organ. "Fever, in regard to its effects on the system," says he, "is the most general of all diseases, and gives rise during its progress, to the greatest variety of symptoms; but its first appearance accurately noticed, will be found to be strictly a topical affection; the general disorder of the system being merely secondary or symptomatic of this." In another work he says "that all the varieties of idiopathic fever, which differ but in degree, as well as those which arise from specific

contagion, as malignant sore throat, scarlet fever, small pox, and so on, arise from one and the same affection, of one and the same organ, and that affection consists essentially in inflammation."

Broussais taught a similar doctrine. According to him, all "fevers are of the same nature; those termed malignant, differing from other fevers, only, by the violence and danger of their congestions; all the causes of fever act locally."

"Considered in a general and abstract manner, fever is invariably the result of a primitive or sympathetic irritation of the heart, through the effect of which, its contractions are quickened; and every irritation, sufficiently intense to produce fever, is an inflammation."

Respecting the nature of fever, there is a perfect accordance between the doctrines of Clutterbuck and Broussais. Both are agreed, that it is an affection of the solids of the body; and that its essence consists in inflammation. Both are agreed, that the inflammation is strictly local, being seated in one organ. But in determining what that organ is, there is an entire discrepancy in their opinions. According to Dr. Clutterbuck, "the organ invariably affected, in every variety of idiopathic fever, is the brain. He considers it to be a species of phrenitis, and that it might be arranged in the order phlegmasiæ, with pleurisy, enteritis and other symptomatic fevers; but that, since the term phrenitis has been generally applied to a particular form of inflammation of the brain, and implies delirium, which does not always occur in fever, although it is a frequent symptom; encephalitis, would form a proper denomination for this entire class of diseases, and might be substituted for the term, fever."

Broussais contends, that the primary and essential seat of inflammation in fever, is the mucous membrane of the stomach or of the intestines, or both; but essentially the former, and that, therefore, "the proper designation of fever, is gastro-enteritis."

These different and opposite theories of fever, are found to have a most important influence on the practice recommended by their respective authors, in the treatment of the disease. The advocates of debility, deprecate all active interference; the grand evil to be contended with, is debility. "The physician can easily weaken, but he cannot easily strengthen. Of course every kind and every degree of depletion that can add to the primary cause of the malady, must be abstained from, with the utmost caution."

The advocates of inflammation state explicitly, that the remedy of the disease is one, and in point of importance one only; which is admitted by all to be the only efficacious one in the treatment of inflammation. "Fever, to be treated successfully," says Dr. Clutterbuck, "must be treated upon the general principles of inflammation; but at the same time with the modifications arising out of the peculiar nature of the organ affected, and in some degree also, the nature of the exciting cause: Blood-letting is proved by ample testimony to be, not only the most powerful, but the safest of remedies." And according to Broussais, in every variety of fever, and in all its stages, leeches are to be applied to the stomach, and scarcely any thing else is to be done, except enjoining rigid starvation.

Of all the theorists which we have noticed, we consider Clutterbuck entitled to precedence. His views will be more extensively considered in the sequel; when with all due deference, we will show some points in which he is deficient. In so doing, he will excuse us, for he says, "it becomes a duty, incumbent on those particularly, who have been placed in situations favorable for observing the disease, to give the result of their experience to the public; should it tend in any degree, either to prevention or cure. The inquiry is by no means exhausted, considered either in a theoretical or a practical point of view. There is still a want of uniformity of opinion among physicians, regarding the nature of fever

in general, and the modifications of treatment necessary in different circumstances. To ascertain these modifications, is the great desideratum, which nothing but the most cautious observation, aided by much time, and the joint efforts of numerous individuals, can supply." We bring with us, the proceeds of a considerable practice, extended through a term of half a century, and offer them as our contribution to the common stock.

Dr. Southwood Smith, has contributed a highly respectable treatise, which is an approximation to truth, and it is believed that we will cheerfully be indulged in making some extracts from his work. "On careful examination," says he, "it will be found, that the first symptom which denotes the commencement of the ordinary fever of this country, in its mildest form, is a loss of mental energy. This is, however, by no means the first symptom which attracts attention: it is commonly overlooked for some time and excites but little notice, until it has become distressing." "This affection of the mind consists, particularly, in indistinctness and consequent confusion in the train of ideas; in an inability to attend to their relations, and therefore in the loss of power to think clearly. The patient is conscious of inability to form a sound judgment on any subject." This is the condition of the sensorium, when fever is in its incipient state. Cullen considered this symptom, which he says is a diminution of the energy of the brain, to be produced by the exciting cause of fever. What then is the exciting cause? Our elementary principles will furnish us with the answer. The external capillaries have been brought into the condition of atony; the skin is more or less constricted, and the arterial structures are injected. The portion of the aorta from the heart to the innominata, and the continuation of the innominata to the carotids, constitute a very direct passage for the blood to the head. Consequently when the arterial structures generally are in a tense state, those of the head will be

more particularly incommoded; the course of the blood, from the heart to the head is so direct, and the distance is so short.

We answer then, too great pressure made upon the brain by an injected state of the arteries, is the exciting cause, which affects the mind, after the manner above described. General attention ought to be invited to this symptom. It ought to be a warning voice to every person, when first felt; for a sufficient blood-letting employed at this stage, will almost invariably prevent a fever. The statement here made, is strictly true in regard to the stress imposed on the brain, and in a majority of instances in healthful climates, the efficacy of blood-letting would be as decisive and effectual, as it is here declared to be. The doctrine, however, needs qualification. In sickly districts, very often, and sometimes in regions known to be healthful, concurring circumstances, so completely cripple the capillary vessels of the surface; institute such a degree of atony in those structures, that the additional direct debility set up by blood-letting deprives the system of ability to react; which in many cases would be fatal. It follows, that the physician should keep this qualified exception in view. More will be found on this subject, in another place.

"Closely connected with this mental weakness, is the loss of energy in the muscles of voluntary motion; great lassitude; a distressing sense of weariness, even in a sitting posture." These sensations are additional evidences of continued pressure on the brain, and indicate the increasing necessity of depletion.

The next symptom in the order of succession, and which is still more characteristic of tension, tending to a state of irritation of the meninges, consists in an uneasy sensation, commonly called restlessness, which is even more distressing than pain. Dr. Smith calls it "febrile uneasiness."

These symptoms are soon followed by pain, first in the back and loins, and then in the limbs. The patient looks

dejected, as if worn down by fatigue; his face is pallid and his features somewhat shrunk. These appearances indicate a tense condition of the capillaries of the spinal chord, corresponding to that of the meninges, and calling loudly for blood-letting from the arm, or cupping over the spine, or both. The skin becomes exceedingly sensitive; ordinary degrees of temperature produces a sensation of cold, which is sometimes intolerable. Chilliness is felt even in a heated room or a warm bed, increasing to shivering. But this feeling of chilliness, does not depend on external temperature; it is increased by cold, but it exists in spite of external heat. Doctor Smith says, "while the patient experiences the sensation of cold, there is no diminution of the quantity of caloric in the system. The thermometer applied to any part of the body, commonly rises as high as in a state of health, and the skin touched by the hand of another person, communicates, not the feeling of cold, but often on the contrary, that of preternatural heat. There is no positive abstraction of caloric from the body, nor any failure of the process, whatever it be, by which animal heat is generated; there is only altered sensation in consequence of derangement in the functions of the skin.* In this form of fever, the chilliness, in many cases, never amounts to shivering; in others there is an attack of well marked rigor; and in others again, there is no feeling of cold, or it is so slight, it escapes observation."

The excitement of the capillaries of the skin is so diminished, that for an indefinite length of time, its vitality is increased, accompanied by an increased sensibility to cold; and a warm room, or a warm bed, will not correct its morbid sensation, until the returning circulation of the blood restores its natural state.

The superficial heat, which acts on the thermometer, and

* In this the Doctor errs. See our elementary remarks on vital heat.

may be felt by the hand of another person, is the consequence of deficient perspiration. Excitement is below the natural state, and caloric is therefore imperfectly developed. But in the absence of the necessary moisture, it cannot escape, and therefore accumulates on the surface. If at this stage, the patient be bled sufficiently, and the depletion be immediately followed by an application of external heat, a pleasant perspiration will be readily established, and all the morbid appearances will retire.

The symptoms thus far enumerated, are all referrable to derangement of the functions of the brain and spinal chord, and this derangement is consequent on excessive tension in the arterial structures, pertaining to those two important organs.

About this stage, however, the circulating system is beginning to exhibit a participation in the morbid action. The pulse expresses langour, and commonly becomes more frequent, sometimes it is slower, but invariably weaker, than it is in health. The respiration is shorter and quicker than natural. The chest fails to expand freely, and seeks compensation in an additional number of respirations.

There is great uncertainty, as to the time which may intervene, between the symptoms indicating the impression made on the sensorium, and those which evince a disturbed condition of the thoracic viscera; commonly, the more acute the shorter the period, but not always. Cases occur, which are slow in forming, and for a while, do not excite alarm; but ultimately, become formidable, or even fatal. All such variations as to time, depend on the ability of the distended vessels to defer a state of irritation. At length however, the retarded blood, by detention becomes deteriorated, till it is sufficiently stimnlant to excite and establish a state of irritation. Then the pulse, which was feebler than natural, becomes more full and strong, and generally more frequent than in the healthy state; and the skin, which was

cold, becomes preternaturally hot, rising from 98°, the natural standard, to 105° Farenheit.

"When the circulation becomes thus excited, the functions of secretion and excretion become deranged. The mouth is dry and parched; the tongue begins to be covered with fur; thirst increases, and the secretions of the liver, pancreas, and mucous membrane lining the alimentary canal, are all vitiated; the urine is altered in its appearance; and the skin becomes hot, dry and harsh to the touch. Meanwhile, the pain in the back and limbs, and the febrile uneasiness are increased. It may be said, the fever is now fully formed.

Take a summary review of the subject. The external capillaries, in consequence of debility, are impaired; their functions partially suspended: the circulation impeded at the extremities of the arterial structures; the whole arterial system becomes injected to a state of distention; the stress imposed on the blood-vessels of the head has impaired the functions of the sensorium, and of the nerves; the blood making organs have lost their activity; although the arteries are injected to excessive fulness, the veins are emptied into the yielding vessels of the viscera. The viscera decrepid and overburthened, cannot perform the function of assimilation. A deterioration of the blood becomes inevitable, which of course must continue to increase, until the entire train of irritations which constitute fever is established. All this might be prevented by one well-timed and sufficient blood-letting. But when fever is established, the irritations which constitute it, are inflammatory in their nature and tendencies, and require a treatment according to the views of Clutterbuck and Broussais; giving preference to the doctrines of the former, in treating a case of sensorial or thoracic irritation; and to those of the latter, when the irritation shall be gastro-interetic.

CHAPTER VI.

BLOOD-LETTING, A MOST IMPORTANT REMEDY IN THE TREATMENT OF FEVER.

According to the views which have been submitted, it will appear that blood-letting is a remedy of the first importance, in the treatment of fever; the superiority of "which, in comparison with other means of cure," says Dr. Clutterbuck, "is shewn in various respects. It is a remedy most frequently called for in general practice, and often, of itself, without the aid of other means, accomplishes all we wish. In point of efficiency, none will bear a comparison with it, while it is one, for which, on numerous occasions, no adequate substitute can be found. It is prompt in its effect, so as to be adapted to many cases of great and sudden emergency. It is the least equivocal of remedies. Its good effects, when properly administered, are in most cases so immediate and striking, as not to be mistaken. This can with truth be said of few others of our curative means; which, except with regard to those of the simplest operation, seldom accomplish what they are supposed to do. In short, blood-letting is a remedy, which when judiciously employed, it is hardly possible to estimate too highly. There are indeed few diseases in which, at some period, and under some circumstances, it may not be used with advantage, either as a palliative or curative means. A great number of diseases are speedily brought to a termination by the early use of this remedy, which without it, are apt to run a protracted course; thereby, inflicting much and unnecessary suffering on the patient. On various occasions, life is brought into immediate hazard by the neglect of this essential means; and still

oftener does it happen, that by such neglect, a foundation is laid for chronic maladies of difficult descriptions, which are not less fatal in their result; such as pulmonary consumption, dropsy, and confirmed asthma. But blood-letting more than any remedy, requires to be well-timed."

In all this report of the value and importance of blood-letting, Dr. Clutterbuck has the confirmation of our observation and experience, carefully conducted for the term of fifty years. "From the earliest times, this remedy has been extensively employed; and at no period has it been held in higher estimation, or more frequently resorted to, than in the present day; one might naturally expect, therefore, that a pretty general agreement in opinion would be formed among practitioners, with regard to it. This, however, is far from being the case. Opinions are still vague and unsettled upon the subject; and in some respects contradictory; while the merits of the practice are by no means justly or sufficiently appreciated. I know of no greater service that could be rendered to the healing art, and consequently to society at large, than the assigning with tolerable certainty and precision, the various circumstances that ought to influence us, in the use of this herculean remedy. The task of doing this, however, is of no ordinary kind, and as I believe, not to be perfectly accomplished by any individual. Every contribution will therefore be willingly received."

The following facts, which we have many times observed, are all sustained by the observations of Dr. Clutterbuck: When blood is drawn from any large vessel, either vein or artery, to a certain amount, and with a certain degree of velocity, the loss is followed by a number of changes in the system, which vary according to the quantity lost, the rapidity with which it is taken and the particular state of the individual at the time, in regard to strength, age and other circumstances. These changes may be divided into the primary or immediate, and the secondary or more remote.

This distinction is necessary in a practical point of view, as we are sometimes desirous of obtaining the primary, sometimes the secondary or remote effects of the evacuation.

"In adults of ordinary bulk, and at the middle period of life, the abstraction of six or eight ounces of blood, from a vein, slowly and quietly, as in ordinary venesection, produces commonly no striking or obvious effect, nor generally speaking, any that is perceptible afterwards; neither the feelings, nor any of the functions are sensibly disturbed or impaired by it. But if the evacuation be carried to twelve, sixteen or twenty or thirty-six ounces, or if a smaller quantity be taken away rapidly, then greater and important changes generally ensue, and which take place in a somewhat regular order, as perceptible in the state of the different functions of the body and mind." "There is commonly first experienced, a slight feeling of langor; and if the pulse at the wrist be examined, it will be found to beat more freely, and often more slowly than before; though sometimes the reverse of this takes place. Breathing also becomes slower, in conformity with the pulse, and it is often irregular, with deep sighs. If the flow of blood goes on, the languor increases, the pulse becomes still more feeble, and sometimes fluttering. To these succeed paleness and coldness of the skin and shrinking of the features; cold drops of sweat hang on the forehead, and sometimes perspiration breaks out over the whole surface; the eyes look glassy and the pupils are dilated. Occasionally also, there is vomiting with other involuntary discharges, and in a few instances epileptic, or convulsive movements more or less general, take place. The pulse at last is not to be felt, the respiration ceases, and consciousness is wholly lost. This is the state termed syncope or fainting; during which, if complete, there is in appearance, an entire suspension of all the vital movements, morbid as well as healthy; it is in fact, a state of apparent death. These effects seldom continue longer than a few minutes, rarely for half an hour;

when the pulse again begins to be felt at the wrist, respiration is renewed, often accompanied with yawning; and consciousness returns."

"Sometimes a copious bleeding is followed by a throbbing head-ache, and a sleepless night." Dr. Clutterbuck considers that these last two circumstances go to show, that, "not only the vascular action of the brain, but its functions also have been disturbed by the evacuation. Such throbbing head-ache, however, is not likely to befall any, but such as are of a nervous temperament, and direct debility is the cause of it and of the sleepless night which follows depletion in such cases. Robust patients only, can safely be bled so decisively.

"When the primary and temporary effects above described have gone off, if the quantity shall have been considerable, as a pound or two or more, there will sometimes follow not only a feeling of languor, but actual weakness. The pulse will be small and feeble and there will be inability to make voluntary exertions. If the loss shall have been very large, as in a violent hemorrhage, or if the blood shall have been largely and frequently drawn, which violent inflammation sometimes requires, the weakness which follows, will be in proportion to the quantity of blood lost, and is often very durable. The skin remains pale and bloodless in appearance, for many months; there is a great languor or feeling of weakness, and an imperfect performance of the functions." This last may commonly be remedied by proper management, as will be seen in the sequel. The effects of blood-letting, however, are by no means, in a strict and uniform accordance with the quantity drawn, or the rapidity with which it is discharged from the vessels. The bulk of the patient, his strength and age, have a share in modifying the result. Temperament, climate, manner of life, &c., are all to be considered.

Blood-letting makes the most immediate impression on

the heart and blood-vessels, the condition and action of which, it can control more effectually and permanently, perhaps, than most other medicinal agents. This is an important fact, since the most violent and fatal diseases, and those too, of the most frequent occurrence, are seated essentially in this class of organs. Such are fevers and inflammation of all kinds, in which the action of the heart and arteries, and in consequence the circulation of the blood, are always more or less disturbed. But the effect will be different, according to the degree of irritability of those structures.

Blood-letting has no doubt been sometimes resorted to, where it was not absolutely necessary, and in cases which might have done well without it; but much more frequently it has been withheld, when its use would have been followed, by great and decisive benefits. And it is often employed without being well timed, and without correct judgment, in respect to quantity, repetition, and manner of drawing. We approve the doctrines of Clutterbuck and Broussais, so far as to admit, that all fevers are more or less inflammatory in their essential characters and effects; and of course that abstraction of blood is often very necessary in the treatment of fever.

CHAPTER VII.

CONTINUATION OF REMARKS ON BLOOD-LETTING.

Agreeably to Dr. Clutterbuck the various opinions of physicians, as to the manner how blood-letting acts in the removal of disease, may be reduced to the following heads:

That it acts upon the principle of depletion; in other words by diminishing the general mass of the blood.

Or simply and altogether by weakening the system.

Or as a sedative diminishing vascular action; this in a great number of diseases being in excess.

The first of these opinions is formed on the supposition, that there is often a superabundance of blood in the system, constituting what is called a plethora; and that such a state of fullness is the cause of inconvenience and danger. That it impedes the circulation by its too great volume, and may produce mischief by distension. But Dr. Clutterbuck considers the existence of plethora questionable, and that the signs usually pointed out as proof of its existence, are at best equivocal. That the relief afforded by blood-letting ought to be ascribed to depletion merely, as being effectual to diminish arterial action, and that the effects which have been ascribed to depletion, ought to be set down to the account of reaction, as if the consequence of over-stimulation.

The second opinion, "that blood-letting acts by weakening the system only," is based on the doctrine of the sthenic and asthenic diathesis. But the same author says "diseases neither consist essentially in, nor are derived from, excess of vigor in the system at large. We do not deny that weakening the general system, whether it be effected by blood-letting or any other means, conduces at times and under cer-

* In this Dr. Clutterbuck errs.

tain circumstances, to the removal of disease and especially where the habit is strong; but the same remedy is often equally effectual for its purpose, when the body is already weak. In both cases, the remedy is uncertain in its effect, and frequently fails to cure. This would seem to show, that it is not simply by inducing weakness that the object is attained; but in some less direct way, probably lessening the disposition to disease."

As to the last opinion, that blood-letting acts by a sedative operation, that is, by diminishing vascular action without regard to the general strength, "a great number of diseases in which this remedy is found useful, are accompanied by much vascular excitement; such is the case in febrile diseases in general. But sueh diseases do not consist simply in increased vascular action, nor do they yield with any thing like certainty, to this or any other sedative remedy. Blood-letting is not required in all cases in which vascular action is in excess, on the contrary equally good effects are often found to result from remedies of a totally different nature." He infers from the whole, "that it is not as an evacuant merely; nor by lessening tension; nor merely by weakening the system nor by a sedative operation on the vascular system that blood-letting effects our purpose in the removal of disease. The most intelligible explanation of the matter appears to be this; that by any considerable loss of blood, however occasioned, a kind of shock is given to the system, in consequence of which, all vital movements, morbid as well as healthy, are more or less disturbed. In this respect therefore, blood-letting resembles in its effects, other sudden and powerful impressions on the system, whether made on the mind or body, and whatever be the cause producing them. In short, blood-letting, in checking or suppressing violent disease of any kind, appears to act upon a principle very analagous to, or identical with, what is called counter-irritation, but which in this case is perhaps better termed counter-impression."

"Upon the principle now stated, namely, that of counter-impression, there is no difficulty in comprehending the superiority of venesection, in most instances, over the slower modes of drawing blood by leeches or scarificatisn and cupping; and we at the same time, readily understand, why the same remedy should prove effectual for the removal of so many various forms of disease, as is found to be the case." But blood-letting is not always advisable for the purpose of producing counter-irritation. Weakness of the patient may forbid it; whilst in cases, under circumstances to which the remedy is well adapted, it is far more efficacious than the other modes of producing counter-irritation usually resorted to, such as blistering, the use of mercury, and the like, and it is free from any serious inconvenience to which these are liable and which are often such as to render them wholly inexpedient.

Let it be repeated, that in the forming state of fever, the external capillary structures are in a state of debility, failing to perform their functions; the skin is constricted more or less tightly around the whole body; the circulation is impeded at the extremities of the arterial structures; the returning circulation by the veins and lymphatics is accelerated by the constriction, which simultaneously resists that of the arteries; and whilst the arteries are injected to a state of tension and likely to be fretted to irritation, the viscera are burthened with an introversion of the fluids, by which those organs are so much oppressed as to be disabled to perform their functions; the visceral secretions are diminished, of course much excrementitious material is detained; the effete matter which ought to pass off by perspiration is also retained, possibly to the amount of two or more pounds in a day. Hence it inevitably follows, that in the commencement of fever, the system is in a plethoric state; Dr. Clutterbuck's opinion to the contrary notwithstanding. Blood-letting is therefore almost invariably useful, and in a large proportion of instances abso-

lutely indispensable. By a copious depletion the advantage of the Doctor's shock is gained—the injected condition of the arteries is retired; the oppression of the sensorium is removed; the volume of the circulating fluids is brought within the compass of functional agency, so that they may be refitted for use; and preparation is made for a general restoration of order.

But in many instances plethora exists until the blood itself is vitiated. To extract a portion of it, therefore, in a manner the most direct possible, must lessen the cause of morbid action. Under these circumstances, Dr. Rush was of opinion, that the effect of blood-letting was as immediate and natural in removing fever, as the abstraction of a particle of sand is to cure the inflammation of the eye when produced by it. Of course, in all cases, especially when there is much pain and the condition of the patient will admit of speedy evacuation, it will be better to commence with blood-letting.*

It may be performed in a manner so decisively effectual, as to strangle fever in its forming state. And this can always be done, if used with the necessary decision, before general irritation or local congestion, shall have been established. By reducing the quantity of blood to a volume, which the system can command with ease, the circulation becomes free and pleasant, the organs concerned in its elaboration, are regularly employed, and a speedy return to order is established throughout the whole system. In this way, it often happens, that a very alarming sense of debility is removed at once by bleeding, with or without auxiliary evacuations. In the same manner, when the pulse is uncommonly frequent because of a fullness of the arterial system; by blood-letting, the thraldom of the heart is removed and the pulse assumes a regular motion. So also, when the pulse is preternaturally

* However, care must be taken, to place the superficial vessels in a condition to secure reaction. The ways and means for accomplishing this will be submitted in their proper places.

slow, whether it be the effect of too great fullness of the vessels of the head, or of the vena porta and liver, by the loss of blood, the motion of the heart—that is, the circulation of the blood is accelerated.

Having mentioned the fullness of the liver and portal circulation, we must observe, that when there is a great nausea and vomiting from that cause, very often, blood-letting affords immediate relief; and in all cases when the state of the pulse will warrant it, the same remedy will correct or prevent, that kind of diarrhœa which attends on eruptive disease, or other inflammatory affections.

When the secretions are imperfectly performed or locked up, blood-letting very often in a short time sets them at liberty. In obstinate constipation of the bowels, with or without known inflammatory appearances, cathartics seldom prove effectual, until preceded by copious blood-letting. If the blood vessels of the intestines are much distended by arterial stress, the irritation of gamboge united with calomel, will not be sufficient to excite catharsis. So also in the administration of mercury, ptyalism will not be produced, until the arterial system is first sufficiently relaxed. The same remark will apply to an attempt to produce diaphoresis, when there is too much inflammatory action. The effort will be ineffectual, whether the attempt be made by the administration of nauseating medicines, diluting diaphoretics, or by the application of external heat, until the blood vessels are first reduced to a suitable condition. A deficiency in the secretion of the juices of the mouth and fauces, when consequent on too much fullness or tension of the arterial system, will not be corrected by any kind of drink or wash, till the condition of the vascular system shall have been rectified, by blood-letting or other equivalent evacuations.

A hot skin, when consequent on that kind of violent excitement which is common in cases of pleurisy or pulmonitis, when it occurs in persons of vigorous constitutions; as also in

many instances at the commencement of malignant fever, is immediately cooled by sufficient loss of blood; as also, a sensation of burning which is felt in the stomach in some alarming cases of bilious fever. In this last symptom, however, some special precautions are to be regarded in the employment of blood-letting, which will be noticed in their proper places. There sometimes occurs in bilious fever, a peculiar kind of protracted chilliness, continuing for several days, and which refuses to yield to any ordinary management, not even to the employment of internal or external heat, but which retires immediately on sufficient blood-letting. A case of this sort requires diligent investigation, as it universally implies congestion in some important viscus; and of course, an undue attempt to insure warmth by the use of cordial or stimulating draughts, must have a tendency to produce incorrigible mischief.

Sometimes, by an unaccountable aberration of sensorial influence, the arterial capillary action of the skin becomes morbid, effecting such excessive secretions of sweat, as to threaten fatal prostration, and at the same time the perspiration, however profuse, affords no relief to the painful symptoms. Blood-letting subdues the arterial action, and the absorbents resume their natural functions. Under a similar state of things, although less general, we sometimes meet a profuse sweat of the head and chest. This in like manner is corrected by timely blood-letting. In a case of this kind, however, caution is necessary, inasmuch as it is more likely to occur at a later stage of the fever, when there may be too great debility to admit of blood-letting. In any instance, when diarrhœa or tenesmus occurs in the course of bilious fever, unless there be too much debility, they are most certainly corrected by blood-letting, or leeching, or cupping. And in any case in which it might be supposed, that these were consequent on debility, if they should resist the use of opium and astringents, and especially if the patient have been sufficiently blis-

tered, there will be a tense state of the pulse, which ought to have been regarded at the first, as indicative of the necessity of blood-letting. Coma, seldom, if ever, occurs in any instance of fever which has been timely treated with sufficient depletion by the lancet; and blood-letting, cupping or leeching, when necessary, is the best—the only anodyne, in cases of febrile restlessness.

Dr. Rush was of opinion, that the frequent instances of effusion of serum and of blood, which have occurred towards the conclusion of fevers, when treated with diaphoretics and imperfect evacuations, might have been prevented in almost every case, by sufficient blood-letting; and many instances of the most troublesome coughs, consumptions, asthmas, jaundice, abscess of the liver, and all the different forms of dropsy, which so often follow autumnal fevers, are consequent on deficient blood-letting in their early stages.

Fifty years ago we often heard much about putrid or gangrenous fever. But having been an early advocate for a liberal use of the lancet, we have rarely seen an instance of that sort, during the half century of our practice. Dr. Morton, in 1678, described a putrid fever which was epidemic and fatal. Dr. Sydenham, who practised in London at the same time, appears to have taken no notice of it. Dr. Sydenham used his lancet freely. Dr. Morton pursued another course. The result was, the one had to witness great and fatal congestion, the other saw nothing of that distressing condition. Having mentioned a variety of instances and circumstances in which it is useful and necessary to have recourse to blood-letting, we wish it to be understood, that in all of these, the remedy has been considered in reference to general principles only, and that there are many precautions, which in their places will be submitted.

CHAPTER VIII.

PREJUDICES AGAINST BLOOD-LETTING MET AND CORRECTED.

There are some erroneous opinions and prejudices, entertained in opposition to the use of the lancet, which need to be removed out of the way, and which claim our attention. We were once sent for by a German, to visit his daughter, who had been eight or ten days ill with an inflammatory affection of the lungs. On our arrival, he let us know, that he would have sent more than a week earlier, only, that he was persuaded that his daughter's disease was a pleurisy, and that it would be considered necessary to let blood. He had therefore waited to see if she would live through the dog days, which she had done, and if we thought fit, she might now be bled. It was too late, she died on the following day. There are many who think it hazardous to bleed in very hot weather. We are informed that Galen bled in a plague, and Arœteus, in a bilious fever, in a warm climate. According to Dr. Sydenham and Dr. Hillary, the most inflammatory fevers occur, and succeed to hot weather. It was the practice of Dr. Cleghorn in the warm months, in the Island of Minorca. Dr. Mosely, treated yellow fever successfully by blood-letting in the Island of Jamaica. The same practice has been followed in that Island by other physicians, particularly by Dr. Broadbelt and Dr. Weston. It has been found to be successful in St. Domingo, and there is high authority in proof, that it is the practice of the native physicians of Upper Egypt. We have used the remedy as fearlessly, and with as decided effect, in summer as in winter or spring. It

is true, it is not so generally necessary, nor do cases commonly require as many repetitions, in the summer season as in cold weather; and more attention is necessary to insure reaction after the operation.

Another prevailing prejudice with some, is, that the natives of the West Indies, or other warm climates, cannot safely use the remedy. If the natives of such climates inherit irritable constitutions, the remedy will be the more necessary for them in any and all cases of inflammatory disease, which may befall them. If not, then of course they have no more to fear than other people.

We often find a difficulty in gaining the consent of patients to be bled, when they feel themselves weak. It is almost impossible to make uninformed persons understand the nature of indirect debility. We commonly state in few words, your system is too full to perform its motions and functions with the necessary ease; you therefore feel weak. By evacuation, the vessels will be set at liberty, and you will feel stronger upon loss of blood. Ordinary confidence on the part of the patient, supported by some such attempt at explanation, generally insures consent. It would be well to be able to add to this reasoning, when necessary, that if there be a great sense of weakness, in consequence of too great fulness, other remedies, whose effects are dependent on the functions of the viscera, will prove ineffectual, and time will be lost. In a case of this sort, all the time we are waiting, there is an increase of mischief and danger attendant on the disease.

The greatest objections are ordinarily made, however, when it is found necessary to bleed persons of very delicate constitutions; and especially if for a long time, they have been in a state of debility. Persons of such temperament and habits, are subject to the same kind of morbid action of the vascular system, which destroys the organs of more robust patients. Although there may be less arterial force, there is a corresponding irritability of the blood vessels. In fact, per-

sons having very delicate vital organs, commonly require larger bleedings in proportion to apparent strength, than those more robust. Such patients and their friends, too often insist on the use of emetics, purges, sweats, &c. in preference to blood-letting. The physician, therefore will find it necessary, in many instances, to condescend to the use of an argument, and persevere in it, until he shall have succeeded in removing their prejudices. And if he act discreetly, it will commonly follow, that the speedy diminution of the alarming symptoms, and the unexpected comfort, which follow the use of the lancet, when skilfully employed, will ever afterwards make his way sufficiently easy. Our patients of this description, are, without a single exception, the greatest friends to the blood-letting practice.

We have often to encounter other prejudices against the use of blood-letting in instances of infants and young children. We shall have occasion to state in another chapter, that the remedy when required in children's cases, may be commonly considered to be imperiously necessary. The great irritability of their blood vessels, the difficulty of using other remedies to equal advantage, and especially the danger which awaits them in inflammatory affections of the lungs and head, to which they are particularly liable, make it necessary that the use of the lancet in such cases should be emphatically insisted on. Mothers and nurses often raise objections; we commonly succeed with them, by letting them feel, that we shall hold them responsible for the issue, if they take upon them the attitude of opposition, in a case where the practice is necessary.

It is another mistake equally great, that old people cannot be bled. The relaxation of their blood vessels makes them liable to plethora, especially when they have pretty good health; for such ordinarily experience an increase of appetite, as their age advances. We knew an old man of eighty, who let blood largely at certain stated periods. He was usu-

ally bled twenty-four ounces at a time. Another, a Scotch labourer, a ditcher, who could earn wages at the age of eighty-four years, was also accustomed to the same practice. There was a lady in our city, about eighty-five years old, whom we bled largely, on frequent occasions of her illness. In 1826, we bled every patient, old or young, who was affected with an inflammatory influenza, which was then epidemic, except one old lady of ninety. We wished to bleed her also, but she and her friends declined it, on account of her age. She was relieved in the course of five or six weeks, by frequent and gentle cathartics. She might have been cured in six days. Botallus, physician to Henry III of France, who wrote a treatise, De Cur. per Sang. Mission, 1660, says, "majus esse adjuvandos senes missione sanguinis, dum morbus postulat, aut corporum eorum habitus malus est, quam ubi hæc juvenibus contingent,"* of course we see, that the practice is not new, and to judge by what has very often come under our own observation, a sufficient experience in the practice of blood-letting will lead any judicious practitioner to use the remedy as fearlessly in cases of old patients as of those that are young.

It is one of the most common prejudices, that blood-letting is inadmissible in time of menstruation. But the uterus, is always during the continuance of that state of things, in an irritable condition, the system is plethoric, and any inconsiderable exciting cause, frequently produces violent degrees of irritation. There can be no question therefore, that in cases of fever in such circumstances, blood-letting is more necessary, than at any other time. It has been the practice in olden times, to rely on the natural evacuation, for the removal of any disease that might occur about that period. It was not then known, that the four to six ounces of discharge,

*That old men are more benefitted by loss of blood, when disease requires it, or the condition of their bodies is morbid, than young men in similar circumstances.

was not really blood, but an elaborate secretion. And even if it were blood, what is the inconsiderable discharge of two or three ounces in twenty-four hours, when the nature of the case might require the loss of fifty, perhaps an hundred ounces. We proceed in cases of female patients, throughout the whole time requiring special attention, as if the catamenial discharge had never been thought of; as if we had no concern whether it ever would return. And in ordinary instances, it needs no care. It will return with the other functions of the system. As its irregularities are consequent on a diseased state of the system, so its regularity will be restored with returning health.

Similar prejudices have prevailed respecting a state of pregnancy. Happily, however, this is less prevalent now, than formerly. The young physician ought to be careful and insist on the necessity of blood-letting in all cases, when there may be proper evidence of an inflammatory diathesis, at whatever stage of gestation. For want of this precaution, many valuable lives have been lost. The irritable state of the viscera, the mechanical pressure, and the constant disposition to plethora, all concur to make it often necessary to bleed patients in a state of pregnancy, when, that consideration aside, the practice might safely be omitted.

An opinion is entertained in some families, that females when pregnant, ought to be bled about the third month, and that the same ought to be repeated about the seventh. All such calculations raised upon periodical necessity, are erroneous. They ought to loose blood whenever it is necessary, without regard to months or days; and when necessary, it is dangerous to omit it, or even to rely on a substitute evacuation.

Spontaneous sweating in fever, is supposed to forbid or supercede the necessity of blood-letting. In cases of pulmonitis, when suffered to progress a day or two, or more, without blood-letting, as also, in many instances of violent bilious

fever, a profuse sweating often takes place, and appears to attend throughout every paroxysm, without affording the least relief; indeed in such instances the sweating would continue until death. This statement has the support of Drs. Rush and Sydenham. "While this constitution (this particular condition of the atmosphere) prevailed," says Dr. Sydenham, "I was called to Dr. Morris, who then practised in London. He had this fever attended with profuse sweats, and numerous petechiæ. By the consent of some other physicians, our joint friends, he was blooded and rose from his bed, his body being first wiped dry. He found immediate relief from cooling diet and medicines; the dangerous symptoms soon going off, and by continuing this method, he recovered in a few days." Writing of the same fever in another place, the Doctor says, "For though one might expect great advantages in pursuing an indication, taken from what generally proved serviceable, (sweating,) yet I have found by constant experience, that the patient not only finds no relief, but contrariwise is more heated thereby; so that frequently a delirium, petechiæ and other very dangerous symptoms, immediately succeed such sweats."

Morgagni gives an account of a malignant fever, which prevailed in Italy, in which the patients died in profuse sweats; their physicians all the while looking for a crisis. It is quite probable, that blood-letting might have saved many of them. These instances, and all such, serve to prove the correctness of our opinion respecting the state of the arteries, in all cases of inflammatory fever; in which these vessels are injected, while the veins are slightly filled. And whilst this particular subject is before us, we will remark, that the petechiæ just mentioned in the above quotation from Dr. Sydenham, proves the same doctrine. We cannot conceive, how they can occur in any case of direct debility.

In all cases of prostration by loss of blood, or other evacuations; as by catharsis or by cholera; in the degree of the debili-

ty, so is the paleness, or the absence of the blood from the skin. When the system is sinking at the close of a fever which has been treated with sufficient evacuations, as the debility increases, so also the paleness of the skin. But in petechiæ, the capillary arteries must not only be filled, but they must be filled with a force sufficient to drive the blood beyond its ordinary extension, and the spots are produced by its effusion under the cuticle. It is true there must be a deficiency of absorption in the capillary veins of the skin, and the want of adjustment in this particular, may be one of the errors which needs to be rectified. But it is equally probable that this want of activity in the absorbent system, is owing to the morbid expenditure of the sensorial influence on the arterial structures. Blood-letting therefore, in such cases, serves to interrupt the morbid action, to break the catenation of motions on which it is dependent, and while the shock is felt, the nerves accompanying the arteries, and which are kept in an irritable state by the accompanying blood, fall into a state of ordinary quietude, whilst the nerves destined to rule over the absorption, resume their power and a balance of the circulation is established. It is true, that petechiæ have generally been considered indicative of a gangreous state of the capillary structures; and if not speedily corrected will be followed soon by dissolution. But Drs. Sydenham and De Haen, both bled in these appearances with advantage when they were accompanied with an active pulse. Dr. Rush bled a Mr. John Carrol, who was sick with petechial small pox. He abstracted fifty ounces of blood, when every pock on his arms and legs had assumed a purple appearance, and saved his life. It is said that Louis XIV of France, when he was thirteen years old, was bled five times, to the great honor and emolument of Dr. Fornelius, who urged it against the advice of all the other physicians of the court. Dr. Cleghorn mentions one case only of successful blood-letting in petechial small pox. Dr. Rush,

however, thougt it probable that his want of greater success was occasioned by his bleeding too sparingly; for he repeated it but three or four times. These instances and authorities show, that in most, if not all instances, fever with petechiæ needs blood-letting; and that the remedy, if well-timed and sufficiently repeated, will not disappoint. But such a state of things is necessarily urgent, and if permttted to stand any length of time, must present the skin in a state of gangrene. And it is highly probable that a want of proper regard to this fact, has often led to the conclusion, that petechiæ necessarily implied a gangreous state of fever. This symptom alone then, ought not to lead to too hasty decision, but the whole train of occurrences, and all the existing appearances in the case, must be duly considered, without delay; and if, upon the whole, blood-letting be indicated, the single appearance of petechiæ need not deter us from using the lancet.

CHAPTER IX.

BLOOD-LETTING PREFERABLE TO ALL OTHER DEPLETING REMEDIES.

In a former chapter we gave Dr. Clutterbuck's account of the superior merit of blood-letting. We here present our own, with the explanatory reasons for our preference of the remedy.

Blood-letting has great advantages over every other method of depleting the system. It at once reduces the action of the heart and arteries, while the nerves in a good degree retain their integrity of power, and if it be carried to any point approximating to deliquium, very commonly, so effectual will be the shock, that the absorbent system comes at once into a state of healthy action, and the disease is smothered in its onset. Other evacuant remedies are indirect and circuitous in their effects, in respect of the action of the blood-vessels.

Vomits, for instance, are sometimes effectual in arresting mild fevers in their commencement, and by repetition have served to cure such fevers when fairly formed. They discharge any offensive matter remaining in the stomach, they slightly diminish the fullness of the blood-vessels by increasing perspiration, and they serve to reduce sensorial power and lessen the morbid action, by making a counter impression on the stomach. But in cases of fever, the stomach is often in such a state of torpor, that the operation of an emetic is too uncertain. And in cases of pregnancy and in such persons as are liable to apoplexy or hœmopthysis, it would often be unsafe. In addition to these exceptions, they sometimes induce cramps and inflammation of the stomach.

The effect of an emetic is not always under the control of the physician;—is often greater or less than is intended. Besides, even in fever of the mildest form, particularly in children's cases, we have been obliged to recur to the use of the lancet, after having used every effort to substitute emetic articles.

Similar objections forbid a reliance on cathartics, in any case where blood-letting is clearly indicated. Purges discharge acrid fœces, and bilious secretions from the bowels, and when the system is in readiness, are of importance on other accounts, which in their place are as indispensable as blood-letting in its proper time and place, which will be explained when we come to treat of cathartics. But in comparison of blood-letting, when speedy depletion of the blood-vessels is desirable, they are uncertain in their effects. In many instances of constipation in fever, and particularly, when there is an inflammatory condition of the abdominal viscera, ounces of salts and castor oil, and drachms of calomel and jalap, have been administered without effect. A physician of good experience, cannot be induced to rely on cathartics in any such case. He will know, that a sufficiently copious blood-letting, and several repetitions of large bleedings are often necessary, before cathartic medicines can be made effectual. In cases which require accurate calculation, they cannot be trusted, as to the time when depletion is desirable, nor as to the quantity; sometimes as to the kind of discharge which it would be desirable to accomplish. That is, they are not sufficiently under our control. Moreover in many instances of advanced stages of fever, they are very unsafe. Scarcely a physician of experience can be found, who has not seen instances of death, which have succeeded upon copious discharges by stool in debilitated habits, and under circumstances too, when there was good reason to have expected recovery, had not such evacuations occurred.

Blood-letting is always preferable to sweating, as a deplet-

ing remedy. The popular prejudice in favor of sweating, gained its hold on the public mind, when morbific matter was supposed to be the proximate cause of fever; and when a remedy once becomes popular, it is wonderful how long it will retain its reputation with a great portion of the community. The true philosophy of diaphoresis shall be submitted in its proper place; when it will appear, that the evacuation of fluid, in reality constitutes but a secondary part of the intention, for which it is judiciously instituted: and of course, it is by no means worthy to be compared with blood-letting as an evacuant remedy. Besides, when there is a great need of diaphoretic treatment, blood-letting or possibly a decided repetition of it may be necessary, before diaphoresis can be properly established.

Evacuation by salivation can never be in time to meet the demands of an acutely inflammatory case. And in any instance, to be useful in that respect, it must amount to one or two pounds a day. In cases of chronic affections of the head, we have seen it eminently serviceable, but in any ordinary case, it is objectionable. It is not always to be produced at pleasure, in all cases painful and extremely disagreeable, seldom or never popular; if unsuccessful, always censured, except only, in cases reported by the physician to be hopeless, if treated in the ordinary way. And if there be any want of confidence, no apology will be received as satisfactory.

The evacuation produced by blisters, is sometimes sufficiently great to be worthy of notice. But in any case of inflammatory action of recent date, especially in any instance occurring in a person of ordinary health and vigor, it never can be a proper substitute for blood-letting. Besides, when we come to examine the subject of epispastics, we shall see, that their good effects more frequently depend on increasing the ability of the skin to maintain its functional action, than in any wise on the evacuation which they produce;—

that the establishment of a blister or issue is instituted, not for the sake of evacuation, but for another very distinct and important purpose.

In many cases, abstemious diet or total abstinence may effectually resist a threatened attack of fever. But a decisive blood-letting would be a more certain and comfortable remedy, and always is more economical, because it saves so much more time. None of the foregoing difficulties or objections lie against blood-letting. It is speedy in its operation and may be accommodated to the demands of the case, however hurried or imperious. It is completely within the control of the physician and may be employed when and where he pleases;—on a journey, if need be; and moreover he can adapt the quantity, with the greatest precision, to the condition of the patient;—its performance gives the least possible trouble, and of course, requires the least possible attention from nurses and servants;—a circumstance which enables the physician often to aid the poor, who must perish, if their cases require much of the nurse's aid. It can be performed with the greatest safety in many cases, in which the agitation, effort and fatigue of either of the other modes of depletion, would be more than could be sustained.

It is by far the most delicate and agreeable mode of evacuating the system;—produces less prostration than an equivalent amount of depletion produced by the other methods;—and the convalescence which follows, is more certain, speedy and perfect, after bleeding, than after the most successful use of the other evacuating medicines. Besides, the employment of blood-letting does not preclude the use of any of the other agents that may be found necessary; and very often, it is absolutely requisite to use them all in quick succession.

CHAPTER X.

ON THE PULSE, AS A GUIDE IN THE EMPLOYMENT OF BLOOD-LETTING.

With the foregoing preliminary remarks in view, we proceed to consider the circumstances which should regulate the use of the lancet.

In the first place we have regard to the state of the pulse.

1st. A full and vigorous pulse, without tension; such as occurs in the yellow fever, gout and apoplexy. It was called by Dr. Rush, the synochus fortis pulse. To understand this specification, it is necessary first to consider the peculiarity of pulse which is intended, when it is said to be tense; which as it is felt, makes an impulse on the finger, like a stretched cord, drawn tightly lengthwise, from the elbow toward the wrist. This synochus fortis pulse is highly important, and is often made out with difficulty. The state of pulse which most commonly and certainly indicates the necessity of blood-letting, is that which we have denominated tense. But this synochus fortis pulse, is not tense. It is full, making an impression on the sense of touch, which reports the arterial tube to be displayed to the full extent of its calibre, and which of course, implies a general fullness of the system, of which the skin in such a case will receive its proportionate participation. The arteries and veins are all full. It is also frequent, say from one hundred to one hundred and fifty, or even one hundred and eighty. A kind of motion, of which it is difficult for a young physician to form an adequate conception, until a few cases shall have occurred under his own observation, and thus have afforded opportunity to know it from experience. Neither a fullness nor frequency, constitutes the most

characteristic mark which defines this kind of pulse. It is full, frequent and vigorous, not much different from the pulse of a healthful man, who has lately taken a free potation of ardent spirits. The power of the sensorium is vigorous; the blood-vessels and nerves are in possession of nearly a full portion of vitality. But the whole system seems to be in a state of perturbation or alarm. There is manifest plethora, insomuch, that the system would seem to be overwhelmed in its own fluids, and is laboring with mighty effort, to keep up a degree of motion commensurate with the alarming occasion. And in fact, the danger consists of a great probability of a speedy injection of the meninges, or a suffocation of some one or more of the important viscera. Blood-letting, therefore, in such a case, serves to make immediate room in the blood-vessels; to give better scope to the circulation, and prevent the mischief which would soon follow. A case of this sort needs special care. For if blood-letting be in time, the cause of the stormy excitement still acting on the system, it must follow, that the state of the pulse, which was at the first full, frequent and vigorous, *without tension* will change its character on depletion, and when the reaction shall have occurred, there will be a degree of tension, presenting the case under a new aspect. So soon as this tension is sufficiently expressed, it will be the signal for further depletion; and as often as the tension recurs, especially if attended with pain, or soreness in any of the viscera, so often should the blood-letting be repeated. This last remark, however, is predicated on the supposition, that the first blood-letting shall have been effectual in changing the state of the excitement; and that the sensorial centres, nerves and blood-vessels, all retain a goodly portion of vitality, so that when the thraldom of plethora is removed, all the powers and organs of the system, at once come into free and vigorous action. And this is invariably the fact, whenever a second, a third or fourth blood-letting is found to be necessary. We have seen in-

stances, however, which probably in the commencement were marked by this kind of synochus fortis pulse, but in the course of twelve hours, sometimes in less; in twenty-four, or thirty hours, have become so languid, that a single blood-letting would have produced a fatal collapse. We have seen others in which blood-letting appeared to be the only hopeful remedy, but it was employed too late. And others again, have come under our observation, as to all appearances, equally unpromising, which were relieved by a well-conducted use of the lancet. In those neglected cases, which progressed most satisfactorily, the blood was drawn slowly, from a small orifice, and as the system was gradually lightened, the blood flowed with a gradually increasing impetus. The distinction of appearances and circumstances, which might enable the physician to decide with certainty in such cases, when the system has been in thraldom too long, so as to render the blood-letting unsuccessful, and when we might venture with confidence to promise relief, have not yet been fully made out. And in a large majority of the cases, there must be uncertainty, as to the issue, till science shall have had more time and opportunity, to make the subject plain and easy.

We repeat an epitome of this state of the pulse. It is full, frequent and vigorous, obviously expressive of great perturbation; but not tense. In accompaniment with hot skin, wildness of expression in the eye, heaviness of respiration and other evidences of oppression. Such is the state of things in the onset of malignant fever. The system is in the condition which is plethora; the remote cause is greatly stimulant, urging the heart to violent effort. The injection of the arterial system, is exceedingly great; the labor of the heart very oppressive, the sensorial influence being very rapidly expended. The sensorium is soon prostrated partly by the exhausting demands of such excessive excitement, possibly more by the pressure made on the sensorial structures by the

carotid arteries. The capillaries are hastily overbalanced by the flood of the circulation, or left decrepid by the tiring heart. The great viscera meanwhile in corresponding state. If sufficiently bled in time, the victim lives—if the intended relief comes too late, he dies. One fact more, however, ought to be noticed. Although we might sometimes use the lancet without success in such a case, other remedies, perhaps I may say all other remedies yet tried, have been found to be as often used without success, as blood-letting: so that on the whole, it may be safely inferred, that appearances are so nearly alike, when the system is approximating to the *ne plus ultra*, and any short time afterwards, it is no just cause of disparagement, not to be able to know with certainty, the precise point or moment of time, at which, the case becomes incurable. To conclude this article, the best inference to be taken from the whole, is, that in all such cases, the sooner the physician is sent for the better.

Another state of the pulse indicative of blood-letting is "a full, frequent and tense pulse, such as occurs in the pulmonary, rheumatic, gouty, phrenitic and maniacal states of fever." This distinction of the pulse is more readily made out than any other, and in the northern and middle states, most frequently claims attention. Contemplate the artery as being nearly or quite well distended at every systole, with a calibre of full size, and well charged with blood; at every stroke making an impression, as if it contracted lengthwise, from the elbow to the wrist, and performing its impulse, as if with very considerable force, and you have the view of it, as it presents itself to observation on the first paroxysm of fever, of this description; in which state it will remain often several hours. But all the time it is permitted to remain in this state, there is continually increasing danger of great and fatal congestion. The danger of the full, frequent and vigorous pulse, not tense, is, that of morbid distension and general decrepitude of the blood-vessels of the abdominal vis-

cera, such as constitutes congestive fever of sickly districts. On letting blood on this state of pulse, as soon as it is well understood, the practice may be regulated with the utmost degree of exactness. The quantity of blood to be drawn, may always be adjusted to the demands of the case. And as accurately, if permitted to flow into a pit, as if measured in a graduated cup. The quantity necessary to be taken in any such case is, just so much as may serve to change the state of the pulse; that is completely to retire its tension. And however effectually it may be done, so long as any congestion or inflammatory disposition of the blood-vessels remains, there will be a recurrence of the tension; sometimes at longer, sometimes at shorter intervals. In pleurisy, rheumatism, and mania, sometimes in six hours, sometimes in twelve, and sometimes in twenty-four hours. If the blood-letting be effectually performed, so as to reduce the tension *well*, the interval of time, between the instances of recurrence of the tension, will be longer, till the fever will become periodically diurnal, and at length it will disappear. If the tense pulse be neglected too long, it will not fail to change its condition. The injection of the arterial system may become so general, and the long struggle of the heart may so wear down sensorial energy, that the tension may with difficulty be made out. We have found the pulse in neglected pulmonitis, so very similar to a typhoid pulse, that we should not have been able to detect the indications of blood-letting, had we not been informed of the history of the case. But when such a state of things occurs in pneumonic affections, it is an interesting fact, that blood-letting changes the state of the pulse; and after it has been repeated once, twice or thrice, the artery is expanded and filled, so that a pulse of apparently very doubtful character, a pulse which we shall denominate a chord-like pulse, becomes full, free and tense; and not uncommonly, after the loss of blood enough to set the system free, the case becomes a plain and easy one, and

ficient skill in the tact of pulse feeling and adjusting depletion to the existing state of things, would enable the physician to succeed in many cases, in which, with other views, he would fail, even in using the same remedies. Before we dismiss this point, we will say, that any man who hesitates to adopt this practice, in regard of those four diseases, must have erred in his manner of making observation, or has not seen a sufficiency of the practice, to be a judge of its superior worth. The wonderful extent to which blood-letting may be carried in them, safely; the reiterated necessity of repeating the operation; and the certainty with which many cases are cured, and all more or less relieved; all concur to sustain the opinion, that these diseases, having suitable respect to each in view of its particular modification, are all intrinsically resident in the blood-vessels. When a case of this sort is permitted to progress, that state of things which we denominate congestion, almost invariably occurs. When this shall have happened, it is important that it should be understood. In the onset of pulmonitis, we let blood freely with intention to reduce the impetus of the heart, and to prevent any further extension of the lesion. For the same reason the blood-letting is repeated, as often as the reaction is sufficiently potent to endanger the injured vessels;—still looking for the co-operation of the absorbents, for the removal of any misplaced fluids which may have been extravasated, or accumulated in the distended capillaries. And whilst the case is recent, the diminution of arterial pressure, aided by the elasticity of the vessels, and the improving state of the organs intended to give transition to the fluids over from the arteries to the veins, will be found speedily adequate to the recovery of health. Indeed in some cases, when it was scarcely probable, we have seen the most speedy and perfect relief.

But when the system has not been aided by timely blood-letting, and extensive congestions have been permitted to

take place, all the precautions given in a former chapter will be necessary. The blood-lettings will be more cautiously performed and in less quantities; and more reliance will be placed on the recuperative powers of the absorbents. The decision which would be proper in the former case, would be dangerous in a case of this sort. In the commencement of a pulmonitis, it is particularly desirable to avoid every sort of irritation. We endeavor therefore at the commencement of every paroxysm, to reduce the action and retire the pain. In neglected cases, it is important that the congested tissues should feel the inconvenience of each exacerbation to a sufficient extent, to maintain their vitality, and excite the absorbents to the necessary action. We deplete therefore, with the intention to keep the arterial action sufficiently subdued, but duly take care to let the fever rise sufficiently to irritate the congested vessels and excite the absorbents. By this method we retire the misplaced or extravasated fluids, and the injured vessels gradually return to their natural state and recover a due degree of tone. In a case where we can meet the first exacerbation, we would let blood nearly to deliquium, and repeat the blood-letting on the rise of each subsequent paroxysm;—that is, forestall its rise. In a neglected case, we would permit the return of the paroxysm to be well displayed, before we would repeat the bleeding; that is, we would let the fever fairly show itself before we would again deplete.

For many years, we have employed blood-letting as a most valuable means for the removal of chronic affections of the viscera; whether thoracic or abdominal. Sub-acute inflammation as well as that which is most acute, needs to be treated by blood-letting, either by means of the lancet or by cupping or leeching. When the action of the heart and arteries is kept sufficiently subjugated, the absorbents gain the ascendency, and long standing congestions are removed.

CHAPTER XI.

ADDITIONAL REMARKS ON THE PULSE, &c.

Another distinction of pulse, indicating the necessity of blood-letting, is "a full, frequent and jerking pulse, without tension, such as often occurs in the vertiginous, paralytic, and hydropic states of fever." This description of the pulse, like the first which we have noticed, is described with difficulty, so as to make it intelligible to an inexperienced physician. The association of diseases, is given in reference, for the purpose of explanation. A peculiar fullness of the vessels of the head, produces the embarrassment of the circulation, which that state of things would imply; nearly the same might be looked for in a case of dropsy, in which the whole system is oppressed. In affections of this sort, blood-letting can hardly fail to afford some relief, and the subsequent repetitions of the practice, must depend on the effect, as to the state of the pulse at the first and the subsequent bleedings. If the practice be proper, the frequency of the pulse will not be materially increased by it; nor will it be followed by any signs of increasing prostration. If it promise much benefit, the frequency will be diminished and the peculiar jerking will cease, inasmuch as the pressure which produces it, retires as improvement is made, from time to time, by the blood-letting. The peculiar quickness and struggle, which is intended by calling it a jerking pulse, is particularly remarkable, and yet it is so, only in a comparative sense, and will be pretty readily discovered by one in habits of feeling the pulse, so as to be able to apprehend the comparative difference. The first description, is supposed to exist in apoplexy, which we have described, full, frequent and vigo-

rous; the vertiginous, paralytic and hydropic pulse, is described as being full, frequent and jerking. The former is an account of it, in those alarming and overwhelming affections, which soon find a termination, like apoplexy; the latter as it is exhibited in those instances which are similar, but always give more time; so that the degree of vigor which marks the impetus of the systole, in the former case, is diminished, and the vigorous motion is exchanged for the jerking motion, which describes the latter.

Another distinction of the pulse which requires blood-letting, is "a small, frequent, but tense pulse, such as occurs in the chronic pulmonary and rheumatic states of fever, and in neglected enteritis." We have given a pretty full account of the tense pulse, in our second definition. In this place we will add, that a tense pulse may be considered as the most infallible, of all the known symptoms, which indicate the propriety of blood-letting; yet the smaller and more frequent the tense pulse is, the greater the circumspection necessary as to time and the quantity of blood to be drawn;—especially, upon the first bleeding. It is important that no more should be taken at the first, than is barely sufficient to change the expression of the pulse; inasmuch as there may be very extensive congestions, and if the circulation be too much reduced at once, the vitality of some portion of the congested vessels, might be endangered; in which case, the frequency would be increased by the bleeding; and symptoms indicative of dissolution would soon follow. This precaution is more particularly important in cases of pulmonary affections. If the blood-letting promise to be useful, in the course of a few hours the system will react with a return of the tension; —and as often, as the reaction is considerable, with distinct tension, so often, the blood-letting is to be repeated. In such pulmonary affections, there is also more or less pain or soreness, which affords additional aid in determining the propriety and necessity of depletion. The recurrence of the

pain, will pretty uniformly be periodical, growing worse, regularly, every day, about eleven or twelve o'clock; and about the same hours at night. It should therefore be the business of the physician, to be present about those hours, in order to time the remedy in accordance with the periodical movements of the disease. It will be found moreover, that whenever the pulse is thus frequent and tense in pulmonary affections, the skin will be imperfectly supplied with circulation; and that we might carry the blood-letting further than necessary, if we neglect the use of measures calculated to maintain the skin in a proper condition. Early and extensive blistering, repeated so as to make the irritation continuous, is necessary in all cases of this sort.

As to rheumatism, when it takes on the condition of pulse here described, and when it will be proper to consider it as subacutely inflammatory, very nearly the same kind of practice will be found necessary in every instance. We have said when it should be considered to be subacutely inflammatory. Rheumatism has been divided by nosologists into two distinctions, inflammatory and chronic. In the first, directions are given to let blood and administer antiphlogistic medicines. In the other, an opposite plan of practice, of course, is deemed necessary. No modern physician of good information and experience, will subscribe to such distinctions or practice. They all know, that rheumatism, after it has continued for months, may be inflammatory, attended with "a small, frequent and tense pulse," and require topical bleedings, sometimes frequent repetitions of them: and that such cases will not yield with readiness, if at all, without this kind of practice.

Another and highly important distinction of pulse, we shall designate as cord-like. We give it this appellation as being most expressive of the impression made by it, on the sense of touch. It feels like a loose cord, which can with great ease be made to slide from side to side of the space com-

monly occupied by the pulse, and is more or less incurvated, as if longer than the arm. In this last particular, it is the reverse of a tense pulse. When full, frequent and tense, it always implies danger of a speedy congestion. The action of the heart and arteries is vigorous, and while struggling almost to weariness, the tension irritates and excites them to frequency of effort; and if this state of things be suffered to continue, pernicious congestions or an established irritation, must soon follow. When either of these circumstances shall have occurred, the full, frequent and tense pulse, will become small, frequent and tense. If however the amount of injury be such as that it can be sustained a sufficient length of time, the violence of the heart's action will abate, and the tension of the pulse will gradually be exchanged for the cord-like state; leading an inexperienced observer to suppose the change to be, the commencement of convalescence. A large proportion of chronic diseases, almost all of the affections of the viscera, which are subacutely inflammatory, present the pulse in the cord-like state. It will be found to obtain in a large majority of fevers and other diseases, which may have required more depletion than the attending physician would allow, and in which nature has been left to make her own adjustments, whilst the tissues of vessels were remaining in a state of congestion. Thus an inflamed eye, left to recover without the aid of sufficient depletion, may at last be relieved of pain and of the common appearances of inflammation, but the coats of the organ are thickened, the cornea is more or less opaque, and a very slight cause readily excites renewed inflammation. In a similar manner, if congestion or irritation be not entirely removed by means of sufficient depletion, the symptoms of an inflammation readily recur. And if the cord-like pulse be felt, in any case thought to be convalescent, let the attending physician be admonished of his mistake. There will certainly be consecutive mischief;—either a relapse or permanent invalidity will follow. A subacutely in-

flammatory condition of the sensorial structures, under such circumstances, will be followed by permanent head-ache ;—a similar condition of the thoracic viscera, will be followed by a condition of things tending to phthysis ;—or of the liver, by a condition tending to chronic hepatitis ;—or of the stomach and lower intestines, by the symptoms constituting the various aspects of dyspepsia, &c. &c. All these evils, have been consequent on a timid or too sparing use of the lancet. Most of the instances of hypertrophy are produced by the same cause. The blood too long detained in any portion of the capillary structures, serves to institute a morbid application of the function of nutrition. The morbid process when once established, progresses indefinitely, till arrested by alterative means ; which ought to be employed in association, with suitable attention to the condition of the external capillaries, till health shall be recovered. In pursuing this plan of treatment, it commonly happens, that the material taken up by the absorbents, through the influence of the alterative agents, renders the fluids sufficiently stimulant, or the blood-vessels, by the practice, become sufficiently irritable, or the two circumstances combined, serve, to institute a new action ; blood-letting then becomes admissible and the character of the pulse is changed ; the cord-like condition begins to retire, a tendency to the tense state returns, and by a judicious continuance of alterative means and an occasional blood-letting, the chronic affection is eventually corrected, and the pulse assumes its natural state. There are instances forming exceptions to these remarks, respecting the cord-like pulse. Some are found, who having been invalids for years, enjoy their usual share of health, whilst the pulse is habitually and uniformly cord-like. So also men and women, who have been accustomed to hard labor for many years, and particularly such as have regularly used alcoholic drinks, or have for a long time smoked or chewed tobacco, in like manner have the same kind of pulse, and seem to have a pretty good

portion of health. In the last eventually, as years increase in number, many furnish instances of induration of the arterial structures, possibly of ossification;—when the pulse felt at the wrist presents a knotty condition as of a line of beads strung at unequal distances. Perhaps most of these cases, may have been affected with fever—an irritated state of the blood-vessels may have been permitted to run through a long continued course, and at length an imperfect kind of recovery, made habitual by continuance is established, leaving the arterial tubes in this peculiar condition. The subject merits further attention.

Another description of pulse requiring blood-letting is a "tense and *quick* pulse, without much preternatural frequency." "This state of pulse is common in the yellow fever." We have met with a few cases only, corresponding to this definition. The pulsation is performed at intervals of time equally divided, and at the rate of seventy or eighty strokes in a minute. But the manner of it has a peculiarity, which is, perhaps, as fully described by the definition as it can well be. It is tense, with a peculiar suddenness of action, of which a very inadequate conception can be formed by any one who never felt it.

Another description of pulse requiring depletion is a slow and tense pulse, such as occurs in the apoplectic, hydrocephalic and malignant states of fever; in which, its strokes are from sixty to ninety in a minute." A moderate degree of acquaintance with the nature and indication of an ordinary tense pulse, would prepare any physician of tolerable information, to meet a case of this sort with his lancet, and repeat the use of it, with becoming decision. The seats of the disease, the unequivocal signs of fullness, together with the force which tension always indicates, would be considered sufficient proof of the necessity of this potent remedy.

We occasionally meet an uncommonly "frequent pulse without much tension, beating from one hundred and twenty

to one hundred and seventy or eighty strokes in a minute." "This state of the pulse likewise occurs in the malignant forms of fever. It is not peculiar to malignant fevers, however. It always implies great plethora, and a perturbation of excitement, which calls for a speedy evacuation; and if relief be afforded in this way before a fatal disorganization takes place, the frequency is often lessened by the first cautious bleeding, and commonly, upon the retirement of this great frequency, the character of the pulse will change, so as to place it entirely under another head of description. The bleedings for a day or two should be moderate in quantity and timed with great circumspection. These last remarks in reference to frequency of the pulse as an indication requiring blood-letting, are intended to apply to incipient cases only.

When the system has been broken down by disease; when great prostration is consequent on a fever or other affection about to terminate in death, we scarcely need to add, that no man in his senses would think of letting blood.

In some instances the pulse is "soft, without much frequency or fullness." This state will be met in affections of the brain, in bronchitis, and sometimes, in a sub-acute inflammation of the abdominal viscera. In cases of this kind, the pulse often becomes tense after bleeding, and then may be treated as any other instance of similar expression. This state of things, as well as the foregoing, requires very great circumspection. The first bleeding in most instances of either of the two, should be performed with a sparing hand, and the physician ought not to leave the bed-side of the patient, until he is sufficiently informed, respecting the effect of the operation. For, in all such cases, if the reaction be slow and imperfect, the practice should be of the mixed kind;—suitable, mild excitants, as hot drinks, external application of heat, sinapisms and epispastics, should be associated to insure the reaction; and then the depletion should go on according

to the demands of the case. Let the patient sit erect whilst the blood is flowing.

Again, there is an "intermittent pulse." It ought to be remembered, however, before we lay too much stress on this circumstance, that with some particular constitutions, this appears to be habitual, and with most old people it is so. In many cases of old persons, whose pulses habitually intermit, so soon as there is feverish action to a degree requiring blood-letting, the intermission disappears, but returns again after depletion, and its reappearance is the best indication of recovery.

Much remains to be learned on the subject of the pulse, and particularly in view of diseases of the head. Mr. Hunter, in his treatise on inflammation, chapter III, section 9, observes, that "in inflammation of the brain, the pulse varies more than in inflammation of any other part; and perhaps we are led to judge of inflammation there, more from other symptoms, than the pulse." The slow, uncommonly frequent, intermitting and imperceptible states of the pulse, which require blood-letting, may be distinguished from similar states, when they accompany an exhausted state of the system, and of course forbid blood-letting by the following marks:

They occur in the beginning of a fever and under circumstances which would have led to the expectation of a very different state of things.

They occur in the paroxysms of fevers which have remissions and exacerbations;—of course, if we should hesitate at the first, the next paroxysm will enable us to decide with fearless confidence.

They sometimes occur after blood-letting, in consequence of the additional power with which the arterial system propels the circulation for a time, after having been released from thraldom by blood-letting.

They sometimes occur and continue throughout the whole

course of an inflammation of the stomach and bowels. A small, frequent and tense pulse, seems to be pretty commonly one of the characteristics of inflammation of those organs.

And finally they occur in cases of relapse, after the crisis of fever. If the disease in the first onset needed blood-letting, and more particularly, if it called for a repetition of the practice, the same will commonly be necessary in case of a relapse.

Sometimes it happens, that fever appears to terminate kindly, when the depletion may have been too sparing, but so soon as the patient is permitted to take nourishment, symptoms take place like a relapse, and in a very imperious manner again call for blood-letting. Such circumstances often occur to females, about the second or third week, sometimes at a later period, after parturition.

CHAPTER XII.

DIRECTIONS FOR FEELING THE PULSE.

It will be observed by the reader, that the great variety of considerations which have been submitted in respect of the pulse, would necessarily imply, that an occasion would be taken to give some instruction as to the manner of feeling it.

Let the arm be placed in such a position, as shall serve to relax the muscles and prevent any pressure upon the artery in the axilla. This is most effectually done, by directing the patient to lie on his back, or nearly so, during the time of the examination. Take the necessary time, and feel both arms, especially in all difficult cases. Lay hold of the patient's wrist, in such a manner as to be able to apply all the fingers of one hand to the pulse. This we have often found of great use in very difficult cases. In order to obtain the advantage to which we refer, it will be best to feel the left hand of the patient with our right, and the right with our left. But we should remember the possibility of an *error loci* of the artery. It is often ramified near the wrist, one branch only retaining the ordinary location.

We ought not to decide upon blood-letting in difficult cases, till we have felt the pulse for some time. We should feel it at intervals of five or more minutes, whenever we have cause to suspect that its condition may have been varied by any contingency not properly connected with the disease; such as emotions of the mind, which may be produced by our arrival, or by the conversation or deportment of friends, or by-standers. If any recent exercise have been taken, or if

the patient have lately been eating or drinking, all these circumstances ought to be taken duly into consideration. If the pulse cannot be felt at the wrist, we may try the carotid, temporal, or femoral arteries. In difficult cases, we request silence in the sick room, and close our eyes whilst we feel the pulse. In this way we concentrate the power of all our senses in our fingers, and our sense of feeling will be more acute. These general rules were observed by Dr. Rush, and we have regarded them with little or no variation for forty years. In exercising our judgment according to the various states which have been enumerated, and with a reference to the rules which have been laid down, it will be proper to notice the difference in the frequency and force of the pulse, morning and evening; between sleeping and waking; between a full stomach and inanition.

But after all that has been advanced, perhaps the greatest difficulty is, to determine on the necessity of blood-letting, in cases where the pulse reports no sign of disease. One general observation may be of use here. If the disease be of recent date; the part affected be one of the organs important to life, and one which cannot sustain violent morbid action, without danger of lesion; if the pain be great and respiration difficult; if there be redness of the face; watery, lively, or suffused eyes; in such cases the pulse may be disregarded in determining to use the lancet.

Dr. Sydenham added to these a flushing of the cheeks, the escapement of a drop of blood from the nose, and an obstinate continuance of a hot skin. But all these marks of Dr. Sydenham are uncertain, and must not be taken for guides without the support of the foregoing rules and indications. It is always important to have regard to the generally prevailing temperament of the season, as it may be discoverable in our every day practice. There is some difficulty in making ourself understood in this particular. Dr. Rush taught, that regard should be had to the character of the

reigning epidemic, in deciding upon blood-letting. In attending to this important admonition, we have acquired the habit of applying the rule to current appearances, as they occur in the round of the season, and are now satisfied, that it is a most useful kind of observation. Dr. Sydenham was convinced that the "atmosphere took on various constitutions;" that the variations were produced by extensive evolutions, or exhalations of some kind of gas, which proceeded from the bowels of the earth; and that these exhalations produce and govern epidemic diseases.

The seasons do vary. The condition of the atmosphere no doubt undergoes such changes as may make important difference in the condition of animal and vegetable life. The physical circumstances which tend to the production of cold or warm temperature, of seasons favorable or unfavorable to luxuriant vegetation; of modifications in respect of electricity and caloric, and the course of wet and dry weather; these circumstances affect the ethereal influences, and the proximate or constituent principles which enter in the aliments of men, in such a way, that the same persons, the members of the same family, the inhabitants of the same city or district of country, will need blood-letting some seasons under appearances which, in other seasons, would not call for loss of blood. But all these agencies or influences are out of sight, and the only notice we can take of them is, that such variations of general temperament do occur. For ourself, we make daily observations in reference to the probable changes which are thus brought about. In letting blood, in a number of instances, apparently under similar circumstances, regarding the same rules and principles of judging, we learn very often, that blood-letting is less important in one month than in another; in one season than in another; all appearances being the same. But our judgment becomes modified by continued comparative observation, so that we are seldom taken by surprise by changes in the general type

of fever. If then, by general observation, we may have ascertained that a disposition to inflammatory action obtains generally, bleeding may be used with more safety and advantage in cases where the indications of it from the pulse, are more or less doubtful. The pestilential fever which followed the plague in London, in 1665, Dr. Sydenham says, yielded only to blood-letting. Dr. Rush was of opinion, that it is equally necessary in all the febrile diseases which succeed malignant fevers, for many months.

We have moreover to regard the seasons of the year, and the state of the weather. It is more frequently and copiously indicated in the winter and spring, than in summer and autumn; and in dry than in wet weather. This last is very worthy of notice, and it accords with our views of reaction, which will always be found to be materially affected by wet, or even cloudy weather. This was noticed by Dr. Huxham, who remarks, that it is a fact observable in diseases of the chest.

The constitution and habits of the patient ought also to be regarded. A person known to be plethoric, and in habits of blood-letting, will need the remedy in instances and circumstances in which others might safely do without it. And persons of a lymphatic temperament, and especially such as are corpulent, must be bled more cautiously and sparingly, than those of sanguineous temperament and habits of body. Of persons of similar temperament, those who are of larger structure can lose more blood than those of less. And in persons between fifty and sixty years of age, more blood may be drawn at once, than from similar persons in middle life, in similar diseases. In persons over seventy, we must use very great discretion, as the pulse is generally full, and the blood, when drawn from such persons in health, will imitate the appearances which we would expect in inflammatory action.

Regard must be had to the country or place in which a person affected with fevers resides, or where he may have re-

cently resided. Fevers in America are more inflammatory in persons of similar rank, than in Great Britain. And in those from the interior, than in those who reside near the seaboard, in the western states. Ship-captains from this country, have had the misfortune, when sick of pulmonitis in London, to be so treated, that their diseases have terminated in abscesses of the lungs, though attended by the ablest physicians of that city. One or two bleedings, have been trusted, when six or eight have been necessary. And it is a fact, that recent emigrants from England or Ireland, commonly require decisive blood-letting, when they sicken in Baltimore, and the southern States, &c.*

We must also have regard to the structure and relative situation of the parts or organs, which are the seats of diseased action. The brain, because of its paramount importance to all the functions of life, the rectum when highly inflamed with hemorhoidal tumors, or other inflammatory affection, the bladder, the trachea, and the intestines when affected with inflammation, either from strangulation or other causes; hernia humoralis; all require more copious bleedings than diseases of the same degree of intensity in the lungs, or other parts of the body, because they are so much out of the influence of the general circulation. In these remote parts, it would seem, that injections bordering on conjestion, or that a conjestion when really established, will remain and continue their tendency to destruction, until the depletion shall have been so complete as to take off almost the whole pressure of arterial action. Sudden relief cannot be produced; and therefore, we must rely on the absorption which will eventually be excited by the irritation of the parts; the arterial action first having been properly subdued.

* We mean, having arrived in health, and remained in healthful condition long enough to have come under the influence of our climate.

CHAPTER XIII.

CONSIDERATIONS FORBIDDING THE USE OF THE LANCET, OR REQUIRING A CAUTIOUS AND SPARING EMPLOYMENT OF THAT REMEDY.

Pains having been taken to show how extensive the necessity and benefits of blood-letting, and to designate the points and distinctions, which are to regulate its use; it will be equally necessary, that we should mention some of the circumstances and states of fever, in which it is forbidden, or in which it should be cautiously or sparingly used.

There are instances in which the brain or viscera are in such a state of congestion, that the whole system is prostrated, below the point of reaction. Something like this probably occurs in those cases, when the pulse becomes imperceptible in the early stages of fever; and when there is a stagnation of the circulating fluids. The skin and superficial veins being nearly or altogether emptied of their blood, a cold and clammy state of the surface, with the appearance of a livid hue about the mouth and eyes, make it obvious that the abstraction of blood not only would be improper, but if it were attempted, could not be accomplished. This is the state of things, in what is called congestive fever, in the south and west. In such instances suitable measures must first be taken to rouse the capillaries of the skin; extensive sinapisms, sometimes covering the thorax, abdomen and extremities;—flannels wetted with whisky or vinegar aided by heat and capsicum, &c. &c.;—or spirits of turpentine or Granville's lotion;—hot drinks slightly stimulant;—injections of turpentine or capsicum;—or spirit and water may be used as there may be occasion. In almost any such instance, so soon as we shall have succeeded in exciting the capillary

action, blood may be drawn; but always, in such cases, in small quantities at a time; sometimes we should rely on cups and leeches only; making the application according to the seat of the disease, if it can be satisfactorily located. The practice conducted in this way, will favor a little the circulation of the blood in the viscera, and the blood will become more equally diffused. With the return of the blood, the nerves will be revived, and blood-letting may be performed in the ordinary way and repeated as there may be occasion; and all subsequent appearances will be such as usually occur, and such as they would have been, if the suffocation which had given the alarm, never had taken place.

Blood-letting is seldom proper in a case of malignant fever, after the third day: the congestion, by that time, will be found to have nearly extinguished the vitality of the distended vessels, or to have brought them so nearly to such a condition, that they cannot sustain blood-letting. In such cases, the blood-vessels will not afford proper indications for the use of the lancet, and if there be any possibility of relief, it is to be had in the use of external heat, sinapisms, blisters, gentle cathartics, and management.

Blood-letting is to be performed with great circumspection in intermittent fevers. It ought always to be carefully timed. When the patient shall have gone through the chilly, hot, and sweating stages, very often, a degree of debility prevails, so great, that a moderate blood-letting might endanger life. Further instructions will be given in another place.

Bleeding is forbidden in most instances, when the pulse is weak and frequent, such as we often meet in typhus gravior; in the plague; malignant sore throat, &c. In such cases, we rely on sinapisms, gentle emetics and purges, and afterwards on cordials. In the subsequent use of cordials an opportunity is afforded to ascertain, whether the viscera are all in readiness for action. If not, the cordial treatment will

produce symptoms, which will report the necessity of blood-letting, which when commenced, will be followed by appearances, such as attend on depletion properly employed in any other circumstances.

We must be very circumspect in prescribing blood-letting in any disease of habitual drunkards. Such are often affected with apparently violent attacks; but they commonly recover with surprising facility. It may be said, that they are accustomed to morbid action. Their animal powers are trained to battle; insomuch, that morbid action is the ordinary state of their blood-vessels, and unnatural distension their ordinary condition. And hence, probably, the danger of bleeding them under common circumstances. Habitual distension has deprived the arteries of their elasticity, and probably of their natural sensibility; consequently, they require unnatural distension in order to keep the capillary vessels supplied. There is danger of an immediate sinking into a state of irrecoverable prostration, or of mania a potu.

After an inflammatory affection shall have determined in suppuration, it is ordinarily improper to repeat blood-letting. In an instance of angina tonsillaris, for example, blood-letting after the commencement of suppuration, serves only to retard its progress. As the arteries are the agents in the secretion of pus, the reduction of their action tends to retard the process. In applying this as a general rule, regard must be had to the state of the system; for it is also possible, that the arterial action may be too strong for a kindly suppurative process; and then blood-letting would be particularly useful.

In pneumony, after a copious expectoration shall have taken place, further blood-letting is unnecessary. But if coughing be again attended with pain, and there be a recurrence of a tense pulse, or of difficult and sparing expectoration, blood-letting must be resumed.

Blood-letting may be dispensed with, in cases of disease, whose progress is such as to afford the necessary time to

wait for the indirect or circuitous effects of purging and abstemious diet. It requires circumspection, however, to guard against mistake. If we give intimation on the first visit to a patient, that recovery may be expected from the use of very mild remedies, and it shall turn out, that we have erred in our judgment, possibly when too late, we shall be driven to the use of the lancet and other potent remedies, it might prove highly injurious to the profession.

When we discover a great and constitutional dread of the operation, and there is no good evidence of danger to life from the omission of blood-letting, in most instances, it would be prudent to avoid it.

Sometimes the effect of the operation on the nerves of the patient may be serious. We once saw a child alarmed into instantaneous convulsions, from being bled with a spring lancet when asleep. We say, in course, let the patient be awake.

It is commonly thought that the appearance of sizy blood invariably warrants a repetition of blood-letting. But this is certainly an erroneous opinion. We have so often seen the contrary, and have so constantly found it necessary to regulate our practice by other and better guides, that we seldom ask the attendants to preserve the blood for our subsequent inspection. In fact, after the fourth or fifth and ordinarily the last necessary bleeding, in case of pulmonitis or rheumatism, the buffy appearance is very commonly more conspicuous than before. In autumnal fevers it will be found, commonly, that one bleeding is sufficient, and yet in most instances, the blood will be buffy. The same thing occurred under the observation of Sir John Pringle, in the hospital fever; and in some instances the blood will put on that appearance when drawn from a patient in consumption a few hours before death.

A tense pulse does not always call for the use of the lancet. Perhaps every case of incurable tuberculous consumption

will be attended by an incorrigibly tense pulse. In cases of this sort, we may repeat the blood-letting however often, and no improvement will be gained as to the state of the pulse. There are also instances of affections of the head and of the liver, in which the tension of the pulse is equally unconquerable by blood-letting. In either of these cases, the repetition of the remedy, must be regulated by other indications beside a tension of the pulse. And when the physician keeps the watch with the necessary care, he will be able to judge of the presence or absence of plethora or of the arterial force which will justify blood-letting. In deciding this matter in any such case, regard may be had to the quantity of food taken daily, the efficiency of the blood-making organs in the process of digestion, &c. but particularly the success with which the loss of blood is repaired. Without this kind of circumspection, the life of the patient may be improperly shortened.

There are instances in which the sensorial influence is morbidly directed upon the arterial system, apparently at the expense of the absorbents;—the pulse is tense from the beginning of such cases, to their termination in death. Such is the fact, sometimes, when great and alarming hemorrhages occur. If the patient be of the lymphatic temperament, and having much flesh, this will be the case, probably, in any instance of hemorrhage to which such persons may be liable.

CHAPTER XIV.

ON THE USES OF BLOOD-LETTING IN CASES OF PREGNANCY AND PARTURITION.

Having at length brought to a close the general therapeutic principles and precautions, in respect of blood-letting, we we shall now briefly invite attention to some remarks on the application of the remedy to some diseases, which are considered to belong to the class of fevers and which we may not have an opportunity to notice, sufficiently, in any other place.

In pregnancy it is often necessary, and is too commonly omitted. All the considerations which concur to prove the necessity of bloodletting in diseases of the viscera, apply to pregnant women, and much more; because of the incessant and continually increasing mechanical pressure, made by the growing fœtus. When we have been introduced into an intimate acquaintance with the affections and sufferings of the fair mothers of mankind, we hear of the many precautions against taking cold in child bed. Puerpal fever is almost without exception, consequent upon a diseased state of the viscera, produced by pressure and constipation. An inflammation of the uterus alone, is a very rare affection. We have not seen it more than ten times in thirty years. Even when fever has occurred to lying-in women six weeks after parturition, we have been able to retrace its predisposing cause, to the mechanical pressure and constipation; to effects of pressure made by the fœtus. Perhaps he ought to add, that the kind of pressure of which we now speak, very commonly,

like certain chronic affections of the liver, or diseases of the mesentery, is accompanied with a sensation like hunger, on account of which, the patient is lead to eat inordinately. After continuing this practice for a season, she complains of feeling empty if she do not eat very frequently; and this continued inclination to eat, serves to beguile the unsuspecting victim, till the injury sustained by fullness and pressure, becomes incorrigible. It is attended, however, by daily headache, cholic, lassitude, and frequently by pains in the lower extremities; and as the danger increases, by thirst, restless nights, alarming dreams, and great fears as to the issue of parturition. In every such case, frequent bleeding, aided by appropriate cathartics, are indispensable, and if well conducted, are almost infallibly sure of success.

These remarks go to show, that almost any disease which is commonly treated with blood-letting, will therefore require it more abundantly when it occurs to a pregnant woman. The well known practice in eclampsia is one instance in proof of the correctness of this remark.

After having so strongly encouraged blood-letting in cases of gestation, perhaps, we ought to add by way of precaution that there are instances of an opposite or reverse character, which would be injured by blood-letting, and which require the regular use of cordials; taking an occasional dose of castor oil, or magnesia, or sulphate of magnesia, as it may be found by experience, best to suit the patient. Parturition, when it is marked with convulsive or clonic action in the uterus, and is accompanied with chills, heat, thirst, a quick, full, tense, or a frequent and depressed pulse, and great pain, is a disease of serious importance, and requires blood-letting and evacuation of the bowels. The labor will not progress kindly, until the system shall have been thus aided by the necessary evacuations. But we do not consider parturition, in its perfectly natural state, to be a disease. We have seen

it occur under circumstances, very moderately inconvenient; and the woman has been able to rise the next day. It is known, that in the Brazils, Calabria, and some parts of Africa, it is scarcely regarded. The Turkish women too, by a very free use of sweet oil, reduce their systems to a degree of convenient relaxation, so as to make it a small matter to bring forth their children. We have been credibly informed, that women who having removed from the North to the States of Missouri and Mississippi, have found a very great difference in their favor. The rigidity therefore, which makes parturition difficult, and which seems to be the result of climate and manner of living, together with the consideration in respect of the inevitable mechanical pressure which has been already noticed, are the causes which produce the appearances of disease in parturition. If the system be already predisposed to fever, and is compelled to struggle long and hard, with a rigid *os tincæ* and *os externum*, the reiterated struggle will produce fever; and the degree of fever will be in proportion to the extent of these two particulars. When it is considered, that parturition is always attended with uncommon facility if the patient has been previously ill with some disease which has required copious blood-letting, especially if a short time only before lying in, and that those appearances which call for blood-letting in other circumstances, would report it doubly necessary in any case of parturition, it is presumed, that we shall feel the necessity of meeting appearances of disease in any such instance with the necessary decision. That is to say, we would take sixteen to twenty or thirty, or even eighty ounces of blood, keeping in recollection the precautions which are proper in other diseases.

Inanition, langour, and feeble morbid action, require cordials, opium, &c.

The ordinary prepossession or fears of the patient, may

commonly be removed by giving her a proper account of the necessity of the practice, or of the happy effects it will be likely to produce in lessening her pains; for it may be stated with confidence that it will facilicate labor; prevent or moderate the after-pains; be favorable to a kindly secretion of the milk; prevent sore breasts, swelled limbs, child-bed fever, and all the train of nameless complaints, that too often follow child-bearing, where this useful measure of defence shall have been neglected.

CHAPTER XV.

MISCELLANEOUS ON BLOOD-LETTING.

There is a period of life, common to most women, when the menses are said to dodge;—that is, to make their appearance irregularly, as to the time of their recurrence, and the time of their periodical duration; and again for a few years after the menses disappear, when there is a morbid fullness and disposition to irritation in the blood-vessels, which requires attention. If such patients are not depleted by blood-letting or otherwise, they are liable to great inconvenience from head-ache, troublesome coughs, hemorrhages, dropsy, schyrri, cancers, &c.

The disease produced by an over-dose of opium or strammonium, would probably be more certainly relieved by blood-letting than by other means, not forgetting the propriety of first endeavoring to evacuate the offending article by vomiting, or if convenient, by the pump or stomach syringe.

We relieved two cases of spider bite, in the persons of two ladies in Virginia, forty years of age, by very copious blood-letting.

Diabetes has been cured by blood-letting. This affection has commonly been considered to be local, and a disease of debility. In conformity with this opinion, it has been treated with stimulating and tonic remedies. A physician with good experience and an accurate acquaintance with the pulse, will be able to discriminate such cases as require blood-letting.

When intermittent fevers have long resisted the use of quinine and all the tonic and stimulating remedies, ordinarily resorted to in such protracted cases, bleeding will commonly be found effectual. It has been a common practice in the

hospital of Pennsylvania, and we have proved its value in many instances.

The efficacy of blood-letting in preparing a patient for a more ready reduction of a dislocated femur or humerus is now as well understood as any other fact in surgery. The same principle is found to hold good in bleeding to deliquium as the principal preparatory measure, before an attempt to turn the fœtus in an arm presentation, when the constriction of the uterus is so rigid, as to render the turning apparently impossible.

Blood-letting is one of the great general remedies, which is never to be considered associated with the name of any disease. Whenever the arterial action is such that it materially transcends the corresponding action of the veins and lymphatics, and at the same time gives evidence by the tension and incompressibility of the pulse, that there is a morbid determination of the sensorial influence upon the heart and arteries, then more or less blood-letting will be useful; often it will be found indispensible.

We have dwelt largely upon this subject, because, we know how much depends on being well acquainted with it. When we first set out in the practice, it was known only as other particular agents are known to the nosologist; and when we first heard of the general use which was likely to be made of it, it seemed to us almost incredible. But at length, testimony supported philosophy, and we were compelled to admit the fact, that it might be employed as one of the great general agents, to an indefinite extent. No one, but such as have felt the embarrassment which is inevitable, when we are under the necessity of feeling after our own way without a guide, in conducting our inquiries and experience in regard of an agent which admits of so extensive an application, can tell how much we would have prized a system of instruction, such as can now be furnished ready to the hand of the student of medicine. Having felt the want of it, we

know its importance, and therefore have taken pains for his benefit. And before a young physician shall have been one year engaged in the practice, he will have ascertained, that the great value of the remedy, is worth all the pains of communicating therapeutics concerning it, and all the time and attention necessary for acquiring the information requisite for its appropriate use. The more frequently he shall have occasion properly to prove its worth, the more highly he will prize it. The longer he shall have opportunity to satisfy himself of its almost universal fitness, to a greater or lesser extent, to almost every patient and in almost every disease, the more highly he will appreciate the memory of our great and excellent countryman, and the father of American medical science. If then we have fairly and truly represented this incomparable remedy in the practice of physic, and shall have succeeded in producing a corresponding zeal in our readers to make themselves masters in this particular, we shall have no hesitation in taking it as a sure omen and pledge, of their dignity in the profession, and of their success in the practice.

CHAPTER XVI.

ON THE VARIOUS APPEARANCES OF THE BLOOD WHEN SET TO COOL AFTER BLOOD-LETTING.

When blood-letting shall have been performed, some useful information is to be gained, by inspecting the appearance of the blood, as to the propriety of repeating the practice.

Dissolved blood. This occurs in malignant fevers; we have seen it several times in pulmonitis; and once in an affection like a rheumatism. This appearance has been ascribed by Dr. Rush, to such a violent or feeble degree of action in the blood-vessels, as to dispose them to a paralytic state. We are not prepared to adopt this opinion, being inclined to think with some of the ablest physiologists, that the arteries, particularly those with large diameters, have but little other action beside that consequent on their expansibility and contractibility; and that the dissolved state of the blood depends much more on the manner of its elaboration and the velocity of its circulation, than upon the mere action of the blood-vessels. It was formerly considered as a signal to lay aside the lancet. But if it occur in the first stage of a fever, it indicates an opposite practice. After repeated moderate blood-lettings, the viscera recover their functions, and the blood is in some degree repaired or reduced to its natural texture. If the same appearance occur towards the close of a malignant fever, it is indicative of a fatal termination; and although the pulse be tense, blood-letting may do no good; the capillaries of the viscera are generally so much congested by the continuance of the morbid action, that they are not able to retire the blood which distends them. After much attentive observation, we have been compelled to adopt this

last expressed opinion, respecting the permanent distension of the vessels of the viscera, which may be so great as to destroy their vitality; and the consequent delay of the blood serves to deteriorate its condition; whilst the distended vessels approximate to gangrene and produce a coagulation of the blood in the tissues which terminate in the injured mass. (See Hunter on the Blood.) The appearance of dissolution in the blood, threatens most danger to life, when it resembles molasses in its consistence. The danger is less, when the part which is dissolved occupies the bottom of the bowl, and when the surface is covered with a sizy pellicle or coat. That is, if the circulation be imperfect, past recovery, and the viscus or viscera principally affected be on the verge of gangrene, the blood will not carry the appearances of any remaining disposition in the particles which combine to form coagulable lymph, to stir themselves to take on that appearance. The blood will be an inert, crude fluid, resembling molasses. But so long as the blood-making organs retain their essential function, although there may be delay, and the particles tending to the state in which vitality is lost, still there is enough of life remaining, to take on the sizy pellicle. When the suffocation which occurs in the early stage of fever, in which alone these appearances of the blood justify blood-letting, and the condition of the blood is corrected by depletion, that is, by lessening the quantity, the blood is more perfectly circulated, being better elaborated for assimilation.

Blood of a scarlet color, without any separation into crassamentum or serum, indicates a moderate degree of inflammatory action. This is likewise seen in malignant fever. It has been called dense blood—improperly however. The same appearance occurs in old people. It proves therefore an imperfect elaboration, such as occurs antecedent to the stage which exhibits dissolved blood.

Red or green serum. These appearances depend on the

condition of the liver, and the consequent result of deficiency in the functions engaged in the elaboration of the blood.

Another degree of morbid action is specified by a crassamentum sinking to the bottom of the bowl in yellow serum.

Another exhibits a floating crassamentum, which is at first turbid, but which afterwards becomes transparent, depositing fiery looking particles.

Another exhibits sizy blood, or blood covered with a buffy coat. If the crassamentum take on the form of a cup, it is significant of more inflammatory action, and is common to all inflammatory fever; to mild cases of malignant fevers and towards the close of fevers that have been violent. Such appearances in yellow fever after an abatement of dangerous symptoms, are favorable. Blood resembling claret when it is flowing, is commonly buffy when cool.

Dr. Rush thought, that the power of coagulation of the blood, was lessened in an exact ratio to the increase of the action of the blood-vessels; and that it was increased, in proportion to the diminution of that action. These remarks were made by the Doctor, in view of his favorite theory, that a morbid action of the blood-vessels is the proximate cause of fever. But we must never lose sight of the great and important truth, that a morbid condition of some viscus or other important structure, must be coexistent with the morbid action of the blood-vessels;—perhaps in most instances, must first exist, before the morbid action which is the effect of irritation can ever occur. Besides a morbid condition of the blood or other fluids, must necessarily be concomitant with a morbid action of the blood-vessels; and possibly the former may be the proximate cause of the latter.

It has been supposed, that an appearance like dissolution of the blood, or lotio carnium, also that the absence of an inflammatory crust, afforded evidence that blood-letting in such cases is injurious. These appearances do not occur in the first attack of fever; in fact they never occur if the cir-

culation through the blood-making organs, be sufficiently active and free. But when the arterial structures have been long irritated, and the blood has been prevented from circulating freely through the lungs and liver, a tendency to the state of things which is marked by this appearance commences, and if not corrected by blood-letting, the complete expression of lotio carnium, will quickly follow. It is an interesting fact, however, that if the blood in such a case be drawn at short intervals, say two or three ounces, every five minutes, till it be drawn four or six times, two or three ounces in each of four or six small cups, we will have as may different appearances of the blood, as we have cups. It is also a fact, that in this respect, much will depend on the freedom of the orifice, that is, the velocity with which the blood is permitted to flow. When this state of things, occurs, however, we do not succeed in obtaining a very free discharge, even if the orifice be well opened. The capillary veins are too rigidly constricted, to afford a very full stream. If drawn in the ordinary way, there will be an obvious arterial force with heat of the skin; and so far is it from being improper to use the lancet under such circumstances, it is not easy to describe a case in which blood-letting is more imperiously necessary.

As to the absence of the inflammatory crust, perhaps it is always absent on the first bleeding, provided the practice be performed within a few hours after the commencement of any sudden attack of fever. A patient, whose blood when drawn under ordinary circumstances and in the common way, would be marked with a very strong buffy coat, if placed for ten or fifteen minutes within the influence of a sufficiently hot bath, and then bled, will furnish an exhibition of blood, nearly as florid as arterial blood; and almost, if not altogether, without the white crust on the crassamentum. This fact goes to prove, that, so soon as the arterial action begins to be tense and irritated, the blood begins to

be imperfectly circulated through the blood-making organs —of course, every moment afterwards, this all-important fluid is becoming less and less fitted for supplying to the several parts of the body those particles of pabulum, necessary for the support of the solids, or those etherial influences, requisite for maintaining a proper condition of the sensorium and nerves. To let blood in the early stages of fever, must always be useful, and in those circumstances, when the arterial action is locked up and tense, it is commonly indispensable, in order to preserve life till the functions which have been thrown into disarray, shall have had time to return to order. The effect of the hot bath in changing the color and condition of the blood, affords evidence in proof that the skin performs a function in aid of the lungs, in maintaining its healthful state.

It has been supposed, too, that an undue proportion of serum to crassamentum in the blood, ought to be considered as premonitory of the necessity of staying the use of the lancet. It is a fact, that when this state of things occurs after frequent blood-letting, it affords one of the most certain proofs, that the practice may be fearlessly repeated; if the state of the pulse, and other indications calling for it, should continue to recur. That state of things which we denominate an inflammatory diathesis, an irritable state of the arteries, very often becomes chronic. And frequently after having disappeared for a while, it is revived by any casualty which may serve to excite the arterial system, such as the use of a little wine, or an ounce or two of improper diet;—even too much company or attention to business. In such cases, if blood-letting at the commencement and a repetition of it shall have been necessary, it will be found equally necessary, on the recurrence of the irritation, to repeat the practice.

It was once thought improper to bleed a patient in pulmonitis, then called pleurisy, after the fifth day. No doubt

this opinion gained its currency, when the theory prevailed, which taught physicians to have a careful respect to nature's operations in preparing and expelling morbific matter from the system. Modern experience, has corrected this mistake. It is now known that blood-letting may be repeated with decided advantage, as long as the pain and a tense pulse continue. Indeed a proper understanding of the circumstances which constitute the danger of this disease, will fix the conviction, that the last blood-letting, if on the tenth day, is as necessary as the first.

In some instances, when this practice is clearly indicated and under circumstances well understood to call for decisive blood-letting, we must not be deterred because the patient seems to be worse after the first or second blood-letting. When the system has been greatly depressed, the sudden relief afforded by the abstraction of blood, so completely sets the circulation at liberty, that in a very short time, the arterial action overruns the absorption of the capillaries, and a tense injection of the pulmonary arteries or those of some other organ, very soon follows. And as the circulation begins to lock itself up, the patient will begin to feel chilly, which may soon be followed by heat, delirium, hemorrhage, convulsions, nausea, fainting, pain, &c., with a tense pulse. If these appearances should be so far mistaken as to lead to the use of wine, opium or other cordial remedies, the consequence may be fatal. So far indeed is this kind of treatment from being correct, the greater the apparent weakness in such a case, the greater the necessity for further loss of blood.

In such circumstances, cases sometimes occur, in which at the same time that pain and other appearances clearly indicate the necessity of blood-letting, the state of the pulse might seem to forbid it. By a soft and apparently harmless pulse, the unwary physician might readily be led to have reliance on a cathartic or emetic, or some other remedy. At length however, when driven to the use of the lancet, he will

be surprised to find, after a bleeding or two, this soft and inoffensive pulse becomes very tense and threatening.

Bleeding is often used very sparingly or avoided altogether in autumnal fevers, for fear of bringing on a typhus or chronic state of fever. A sparing use of the remedy is indeed very apt to be followed by such appearances, because the imperfect use of the remedy fails to correct the inflammatory diatheses of the blood-vessels, and when left to wear itself down by time, there is no just cause to complain, because it requires time enough to do the work. We can conceive of no way, by which blood-letting can have a tendency to produce a protracted state of disease, save only, an omission of the means necessary to secure a sufficient and permanent excitement of the skin. Patients of a nervous or lymphatic temperament, most emphatically need attention in this particular.

Objections are sometimes raised against blood-letting, because it is thought to weaken the patient. This objection is purely the effect of ignorance of what takes place in the animal economy, when this practice is made necessary. For it is the fact, that the chief merit of blood-letting, consists in its instantaneous power to induce as much debility, as the case can demand. Other agents are too slow in producing their effects, and before their indirect action can be made to bear on the case, the lesion produced by the violence of the disease, may be fatal to the patient. There is another consideration of very great moment. If we rely on other means for reducing the power of the feverish action, and especially if it should require much time, there must necessarily be produced a proportionate degree of prostration, such as would involve the power of the sensorium and the condition of the blood. Blood-letting will enable us to secure an equal degree of safety, as it respects the desired debility, avoiding the danger before noticed, and at the same time maintaining the sensorial power, to be employed in effecting the restoration of healthy action.

We have often been asked if blood-letting, did not carry with it the great evil, of bringing about the necessity of its habitual use? That it would be a bad practice to eat and drink to excess, so as to induce plethora, and then have recourse to the use of the lancet for its correction, there can be no question. A repetition of such a practice, would bring about the habit which seems to be dreaded, and it would be a habit which would soon produce very serious consequences. But it must be seen at first view, that the objection is worth nothing, when opposed to the imperious demands of a case of inflammatory fever. Besides, the time required for the correction of the disease, and for the whole course of convalescence, is always sufficient for an equable invigoration of the whole system, as well the blood-vessels, as the muscles.

Bleeding in autumnal fevers has been condemned, because it is frequently followed by fever in the intermittent form. The bare mention of the objection is sufficient to refute it. To exchange a violent and dangerous fever, for one that is safe and manageable, must certainly be an advantageous commutation. Besides there are instances of intermittents which defy all known agents, until the inflammatory diathesis, which constitutes the difficulty, is removed by blood-letting.

The enemies of the blood-letting practice, have said that it predisposes to effusion of serum in the lungs, chest, abdomen, head, and cellular substance. Our practice and observation do not at all accord with this objection. Indeed they have convinced us, that the mischiefs referred to, have occurred from the want of timely and sufficient depletion; and instead of charging them to the account of blood-letting, they would much more justly be ascribed to timidity or want of judgment, on the part of the practiser; for no man can know the full value of blood-letting, who does not heartily engage in its use. Besides, in the application of this remedy, it is im-

portant that a proper regard be paid to the condition of the external capillaries; which done in due time and in an effectual manner, there is nothing to fear from effusion. Indeed we cannot readily conceive, how debility alone can dispose to effusion. We have frequently cured dropsies by blood-letting and cooling cathartics; which practice would be strangely absurd, if the objection under consideration had any real merit. If ever bleeding kills, "says Botallus, either directly or indirectly through the instrumentality of some other disease," it is not from its excess, but because it is not drawn in sufficient quantity, or at a proper time. And again in another place, he says "one hundred thousand men perish from the want of blood-letting or from its being used out of time, to one who perishes from too much bleeding, prescribed by a physician."

Associations have been formed in cities and country places, predicated on the practice of the aborigines, proposing to cure all fevers without blood-letting; relying on puking by means of lobelia inflata, sweating by the external application of hot steam, and the internal use of capsicum, ginger, barberry bark, &c. That this sort of practice may often relieve slight diseases, and sometimes fail to kill patients seriously ill, we have no doubt. But we have seen some instances of irreparable damage done by it, and no man, at all acquainted with anatomy and physiology, could for a moment believe the tales that are told about the success of a practice, which in every instance of seriously inflammatory character, must endanger the life of the patient. As to the Indian sweat, we shall take occasion to be understood to entire satisfaction, when we come to treat at large the subject of diaphoresis. The most potent and popular argument which they pretend to offer, is, that the blood is the life, and suppose they have defied all contradiction, when they can quote a clause from the scripture of truth, in their support. To strengthen the prohibition given to the children of Israel by Moses, against

the practice of the Gentiles, of eating the blood of animals; he informed them, that "the blood is the life." But there is not the shade of an insinuation, that blood-letting is forbidden by the Bible. The position of the veins, and the facility with which they are sufficiently strangulated for the purpose of conveniently performing the operation, seem to invite to the practice. And a proper acquaintance with the physiology of the blood-making organs, collated with the fact every day exhibited, that the blood is a fluid which is perpetually being made, in great abundance, furnishing the material for all the secretions, would of itself be sufficient to silence such ignorant pretensions.

CHAPTER XVII.

AN INQUIRY RESPECTING THE QUANTITY OF BLOOD THAT CAN BE SAFELY DRAWN IN ANY INSTANCE OF BLOOD-LETTING, AND HOW OFTEN IT CAN BE SAFELY REPEATED.

Our next inquiry will have respect to the quantity of blood that may probably be required to be drawn, in any individual instance.

A person of ordinary size, is supposed to contain from twenty-five to twenty-eight pounds, and by casualties of different kinds, one-third of that quantity has been lost at once, without hazard. But a greater quantity can be taken with safety, when the blood-vessels are in a state of irritation, than when in health. If the blood is a stimulant when in its healthful condition, and the vessels in a natural state, then it is obvious, that a less than natural quantity will stimulate sufficiently, when, not only the blood is more irritating, but the blood-vessels more irritable, than natural. We know that the eyes and ears, are painfully sensitive to a very little light and sound, when the system is thus affected. And we know, with equal certainty, that under similar circumstances, a very small portion of wine will serve to irritate, to an alarming degree, even those, who in health are well accustomed to its use. We have it recorded in the books, that one man in St. Thomas's Hospital, by the advice of Mr. Kline, drew three hundred and twenty ounces in twenty days, for a contusion of the head. Dr. Haller reports one person, who lost nine pounds; another twelve, a third eighteen, a fourth twenty-two pounds, by epistaxis, at one time. Dr. Rush speaks of a gentleman at Angola, who lost three and four pounds, per

day, in the same manner; and who was cured by being bled ninety-seven times, in one year: of a young woman, who was bled one thousand and twenty times, in nineteen years, to cure her of a plethora, which disposed her to hysteria; and of another who lost one hundred and twenty-five ounces of blood, by an hemorrhage, every month. To cure this she was bled every day, and every second day, for fourteen months; and they all recovered. We bled a lady one hundred times in four months; sometimes four ounces—sometimes more at each time for an inflammatory disease of the head; she recovered. We bled a maniac one hundred times in six months, three times two pounds; often a pound and seldom less than half a pound at any one time. He became anasarcous to a moderate degree, when the blood-letting was laid aside. He ultimately recovered.

Dr. Sydenham, vol. 1, page 131, says "among the other calamities of the civil war which affected this nation, the plague also raged in several places, and was brought by accident from another place to Dunstan Castle, in Somersetshire; where some of the soldiers dying suddenly with an eruption of spots, it likewise seized several others. It happened, that a surgeon who had traveled in foreign parts, was in the service there, and applied to the governor for leave to assist his fellow soldiers, who were afflicted with this dreadful disease, in the best manner he was able; which being granted, he took so large a quantity of blood from every one, in the beginning of the disease and before any swelling was perceived, that they were ready to faint and drop down;—for he bled them all standing, and in the open air, and had no vessel to measure the blood; which falling on the ground, the quantity which each person lost of course, could not be known. After the operation he ordered them to lie in their tents, and although he gave them no kind of remedy after the bleeding, yet of the numbers that were thus treated, not a single person died. I had this relation "says the Doctor, from Col.

Francis Windham, a gentleman of great honor and veracity, and at this time governor of the castle."

It may be remembered too, that blood is rapidly regenerated. "A person," says Haller, "lost five pounds a day from the hemorrhordal vessels, for sixty-two days; another seventy-five pounds in ten days. We have recited these numerous facts, supported by the best authorities, and added our own testimony, to prepare the reader to use the necessary decision in the employment of this important remedy; and to show, that a timid or even a moderate practice in its use, ought not to be relied on. From our own experience we are sure, that half-way measures will generally disappoint. It is better not to bleed at all, than to stop short of the quantity which shall be proportionate to the violence of the case. We must be prepared to judge by the pulse and other appearances, and then remember that in blood-letting, as in any other enterprize or undertaking, the value of it is known only, when it is consummated. Whoever desists in administering cathartics in a colic attended with constipation, until he has succeeded in opening the bowels? For similar reasons the bleeding should be repeated, so long as, the indications requiring it, continue to return. And we will add, that the convalescence is always more complete and speedy, when the practice has been sufficiently decisive.

But it is also proper to graduate the quantity drawn at any one time, in any case, according to the state of the system. When the pulse acts with force and freedom, from ten to twenty ounces may be taken at once, in any ordinary case: if the pulse be depressed, it is commonly better to take a few ounces at a time, repeating the operation three or four times a day. By this method the blood-vessels are gradually released, and the inconvenience of a shock is avoided. This method or something like it, would commonly be safest in fevers when the pulse is tense, but when the character of the

fever is not sufficiently known, the quantity may be regulated according to circumstances.

In fevers and other diseases whose type and character are known, and which run their courses in a few days, or hours, threatening speedy destruction, there can be no limits previously fixed, as to the quantity of blood which may be drawn at once, or in one day. In such cases, Botallus drew four or five pints in a day. Every physician of good experience, does that or something like it in every case of eclampsia which comes under his direction and management. Dr. Jackson drew fifty-six ounces at one time, from a patient in one of the British hospitals, in a fever of great danger. This patient was instantly relieved;—in three or four hours, was out of danger;—and in three or four days returned to duty. It is stated in Philadelphia, that Dr. Physick drew from Dr. Dewees, ninety ounces at once, in an attack of apoplexy. It was so effectual, that he was able to return to business in a few days afterwards. In any instance of violent disease of recent origin, and threatening danger to some one vital organ, we have so often found it important to bleed to deliquium, that we deem it necessary to inculcate the practice. The rationale of its good effects has been given in a previous chapter: but this decisive method should never be employed in the advanced or the last stages of fevers. The system under any circumstances requires all its resources of sensorial energy, to rouse it from a fainting fit; and such requisite stock of energy, does not always exist, except at the onset of disease. In chronic fevers of an inflammatory type, however, small bleedings may frequently be repeated with great advantage. The benefit of this practice, is perhaps too little known. And it will require a degree of vigilant attention and patient observation, which too few are disposed to make, to gain the necessary judgment in its use, so as not to be liable to mistake. All medical men who have any pretensions, use mercury and antimony, and dietetic management,

with alterative intentions. Before this kind of practice can be successfully employed, there must be acquired a maturity of judgment in respect to those particulars, similar to what is here recommended, in regard of blood-letting, as an alterative practice. A proper consideration of its physical effects on the circulation, and the ultimate result in regard of the laws of absorption, we have thought, ought to be satisfactory. We use the cold bath in some chronic affections, but never expect that two or three immersions will effect a cure. We persist in its use for months and years. So also we must do, if we have recourse to blood-letting as an alterative agent. It should be repeated, while the symptoms which first indicated it, continue, however often, or to whatever amount of loss of blood, it may be found necessary to carry the practice. And even in those cases, which do not admit of cure, and of course, where the bleeding is to serve only as a palliative remedy, it is equally comfortable to the patient, and ought to be employed with the same diligence, as if it were expected to be perfectly effectual.

Formerly, great importance was given to the place from whence the blood was drawn. It was taken from the foot in order to excite revulsion from the head or breast. But this is inconvenient on account of the position of the patient. It is more dangerous on account of the greater liability to wound a tendon. And if it be important to review the work by inspecting the blood, it will not be practicable.

The pulse is to be considered as the chief indication, "the dial plate of the system." It ought therefore to be studiously observed in health and sickness, in the old and young, and in all throughout all the seasons of the year, still continuing the observations with untiring attention, until a sound judgment shall have been formed. For it must be admitted, after all that can be said or written on this important topic, that every physician must be eventually prepared to judge of the pulse in his own way; he must adopt his own method of

associating his auxiliary considerations, and mark out his own points of discrimination to guard him against mistake. And let us here reiterate the admonition respecting the great importance of forming, what we take the liberty to call, a current judgment, respecting the effect of the seasons, in producing or maintaining a state of things, which calls for blood-letting, when the pulse does not report it, as at other times. We dwell on this, because not only our success in many cases, depends on it, but what is more imperious, the preservation or loss of many lives will be involved in our ability or disability to make the discrimination. This will be found difficult for a time, but perseverance will overcome all difficulty, and the complacency of feeling, which will be our constant companion, when the desired point shall have been gained, will more than compensate, for all the most painful attention which may have been necessary for its accomplishment.

PART II.

THERAPEUTICS.

PART II.

CHAPTER I.

INTRODUCTORY TO THERAPEUTICS.

Therapeutics has now become a science. For ages it remained an embryo, germinating in the crude accounts of diseases which fancied medicaments were supposed to cure, and was cherished by numerous tales of the wonderful effects which those medicaments were said to produce.

Incipient principles and doctrines were collected from the faragos of empyricism, which were recorded in numberless recipes of heterogenous compounds. Ignorance had planted it in the wilderness and endeavored to promote its growth, by collecting around it a chaotic accumulation of substances, which were considered important on account of such specific virtues, as imagination or experience had associated with their names.

To the last and present century we are indebted for the systemmatic arrangement of the principles and reasonings, and the classical disposition of the materials, which now sustain its claims to scientific dignity.

In presenting this branch of medical knowledge as a science, we are far from considering it independent of the other equally important branches of the profession. Physiology,

pathology, and therapeutics, have so near a relation, so inseparable an affinity to each other, that their nomenclature ought to be formed with a careful reference to the same anatomical roots, and their doctrines should so accord as to show their identity of purpose. But the insulated character of too many treatises, which even now occupy places in our libraries, intended to give instruction in these several branches, has been such, that they might be read with ordinary attention, and the reader fail to obtain a clear perception of the important truth, that between the organs and functions of the human body, the diseases to which they are liable, and the modus operandi of medicines calculated to heal these diseases, there exits an analogy, the knowledge of which constitutes the only sure guide of the physician. This embarrassing defect will be corrected; and the fundamental principles of medicine will assume an harmonious and settled form. Anatomy has been laboring to establish the identity of the structures, as they exist in the human body; physiology, that of its various functions; and pathology, that of the laws by which its diseases are governed. All these branches acknowledge the near affinity of their several departments, and in their mutual dependence are approximating to the desired maturity. Their well known reciprocity of interest, has already served to procure for each a perfection, which neither of them, had it been cultivated separately, would ever have received. And all these, thus mutually engaged, are contributing largely, with intention to give an equal elevation to therapeutics, in the attainment of a corresponding certainty in the cure of diseases.

In contemplating each branch of our profession as a distinct science, we understand, that a suitable acquaintance with any one of them, implies a comprehensive view of the whole, and that each may be considered as one chapter of a great work, of which the principles, the plan and the execution are every where unique. Of course, a division of the

great whole is necessary only in the study of the healing art. By this method, we are enabled to submit to the attention of the student, in a suitable succession, the different elements of which medical knowledge is composed. And although each elementary branch, in its place, may alternately seem to assume a superior degree of importance, this illusion will vanish away, as his mind shall be prepared to comprehend the entire system, in the conformation of which, each department is employed. He will then be pleased to see, that whilst anatomy investigates the structure and relative situation of all the organs or parts of the human body; physiology makes observation on those organs or parts, in their healthy state; and detects the laws under the direction of which, their regular functions are performed; pathology examines the causes which disturb the order of those functions, setting up a morbid action in the organs or altering their structure, and describes the phenomena which attend upon those disturbances and changes; and, therapeutics, after having availed itself of all these preliminary investigations, proceeds to ascertain and establish the indications, by which, the physician is to be guided in his attempts to restore regularity to the system when disordered, and health and order to any function or organ which may be the seat of disease.

Therapeutics therefore, requires a consideration distinct from materia medica, as well as from the other branches, both in regard of the object of its research, and the end which it proposes. Whilst materia medica is employed in collecting and describing such substances as are useful to the physician, and with the aid of chemistry and pharmacy is making him acquainted with the physical character, chemical combination, or pharmaceutical composition necessary to arm them with the greatest degree of activity, therapeutics is making observation on the diseases, and ascertaining the phenomena and concomitant principles, by which the physician is to be guided in the use of the medicines which the particular case

may indicate; and the utility of which, in similar instances, has been established by experience.

Therapeutics may be said to unite medical science, proper, to those branches of physical or natural science, which are auxiliaries to our profession. A scientific acquaintance with the immediate or secondary effect of medicinal substances, when taken into the system, after a just comprehension of the principles which ought to regulate their employment as medicinal agents, implies a competent acquaintance with anatomy, physiology and pathology. And the truly scientific physician will have added to all these, the knowledge which is supplied by the naturalist, the chemist and the pharmaceutist. For without these, he cannot properly understand the physical qualities, or select the most useful preparations of those substances, of which the therapeutist advises the use.

Therapeutics prepares the physician to be a judge of the value of any medical intention, or distinctly to perceive the occasion which indicates any particular article of medicine, or of the comparative merit of any two or more medicinal substances. When all the important circumstances which pertain to the investigation of any particular case shall have been duly examined, and the curative indication shall have been discreetly adopted, ultimate success will then depend on the therapeutic application of the practice which is to follow. It remains after all that has been so far done, to select the agent; to judge of the circumstances which are to regulate its employment; to ascertain its appropriate dose; to modify the formula most favorable for rendering it useful; the time of repletion; the effect or evidences by which to judge whether it is likely to produce the contemplated intention; and if not, the true cause of the failure; the variation of its dose and repetition, as the case progresses. To perfect the student of medicine in those attainments which shall enable him in a workmanlike manner, thus to execute his own

curative intention, is the particular object and end of therapeutics.

Disease is a relative state of the human body and is the reverse of health. Therapeutics labors to effect the cure of disease, by the restoration of health. To understand what pertains to the accomplishment of this object, is to understand the circumstances in detail, which are involved in the formation of disease, the retirement of which, implies the restoration proposed; and a clear discernment of them both, is necessary to the therapeutist. In health, the organs essential to life, perform their functions with a suitable degree of activity and permanence of strength. Their sympathies harmoniously accord; their demands for sensorial influence, are acknowledged in common; the elaborated fluids which it is their office respectively to furnish are duly accomplished; and the most perfect order is maintained, whilst each is engaged in the performance of its own particular function. But when an impression is made by a morbific agent sufficiently powerful to produce disease, this harmony is disconcerted, and a series of actions is produced, which tends to very different results. The physician is called, therefore, not to make his observations on a body whose motions and functions are all properly performed, with a view to take measures for their regular continuance; but to investigate the degree of change and irregularity which may have taken place, and by the morbid phenomena and the degree of violence and rapidity of the disease, to judge of its tendency to destruction.

But it is not our design in this place to inquire what it is, that constitutes disease and its consequent injuries. We inquire how far, the economy of the animal system may be considered as competent to the task of restoring itself. If this can be done, we shall be better prepared to judge of the extent of artificial interference, which it may be necessary to furnish for its aid, in any particular case.

We read much about the healing power of nature,* and of her efforts in sickness to re-establish health. Hippocrates taught and all his disciples received it as truth, that the animal organic system is endowed with a *phusis*, corresponding to the Latin, *vis medicatrix naturæ*, by which is meant, an inherent power to repel or eliminate morbific agents, and according to modern doctrines to restore regularity to her disordered functions.

In a properly qualified and restricted sense we subscribe to this doctrine of the father of medicine. Our experience compels us to pay him this homage. But at the same time, experience has likewise taught us, that many diseases have a constant tendency, so much to derange the organs or tissues of vessels on which they act, that without the timely interference of art, a ruinous change in the structure of the organs; —in many instances, gangrene and death, are the inevitable consequences: and diseases less dangerous, if neglected, may and too frequently do lead to a state of things, in which new and additional injuries are superinduced, more pernicious than the original morbid affection. All of which are irresistible evidences against the vis medicatrix naturæ, as it was understood in former times.

Instances have occurred, in which, a slight gastritis, or a pulmonary catarrh have been relieved or cured, by a spontaneous bleeding at the nose, or a copious spontaneous sweat. The evacuations in such cases have been called critical and nature has had the credit of effecting the cures. Such occurrences do not prove the doctrines, in support of which they have been advanced. The evidence would be in point, if it could be proved, that the vis medicatrix actually presided in the instances mentioned and had an intended recourse to those methods of depletion; and that in consequence of this design, she was afterwards enabled to bring about a restora-

* Sometimes by modern writers called the recuperative power.

tion of a healthy condition of the lungs or abdominal viscera. The truth is, that the beneficial result is more properly ascribable to some contingency in regard of the schneiderian membrane in the one case, subjecting it to an easy rupture of its blood-vessels; and some casualty in relation to the condition of the skin, favorable to a ready production of diaphoresis, in the other. In each of the two cases, in a way altogether incidental, the necessary depletion had been effected, after which, recovery readily followed under the operations of the restorative powers of nature. It would be a ridiculous and superstitious credulity, to admit of any other view; unless in a majority of the cases which require depletion, nature is prepared to avail herself of some sufficient outlet for her own relief.

We admit the existence of a medicatrix naturæ nevertheless, but conceive of its operations in a way, very different from the foregoing account. Indeed this healing power is most distinctly and satisfactorily displayed, in the good effects which follow, when the judicious therapeutist shall have made appropriate arrangements for accomplishing his intention. And a proper intention is always formed and executed, with a constant reference to this power. In all such cases, as the two referred to above, a plethora prevails, which impedes the regular and healthful performance of the organic motions and functions. The disturbance is expressed by pain in the stomach and vomiting, in the one case, and by a difficult or painful respiration in the other. By a sufficient loss of blood from the nose in the one and by a copious flow of perspiration in the other, the system is considered to have been effectually depleted and set at liberty. The vis medicatrix, then resumed her regular train of motions, and health was restored. Without the depletion, a very different state of things might have followed. The energies of the system, when once concentrated in a train of morbid motions, instead of effecting relief by an accidental depletion, in a majority of

cases continue an unabated struggle, till they produce a fatal cerebral, pulmonary or other congestion. And therefore the facts which can be adduced to prove, that in some instances, the animal economy, without artificial aid, has seemed to recover a healthful state of the functions, when they had been thrown into disorder, if collated with the many opposite facts which prove the indispensable necessity of artificial assistance; allowing them all that can be properly claimed, can prove no more than that disease in a mild form may chance to retire spontaneously with or without a crisis.

But every physician acquainted with the diseases of our climate, knows, that by far the greater number of cases would persevere, and speedily terminate in death, or become chronic and by the laws of sympathy set up complications in respect of organs which were not involved in the commencement, and eventually terminate in suppuration, effusion of serum or lymph, or in some other serious or fatal disorder. Much skill is required, to prepare the physician to judge with certainty, in the commencement of a case, as to the necessity of his interference, as well as to the degree and extent of it, which may be required. And the great point is, to be able with the necessary precision, to adjust the management to the circumstances of the case.

To subdue the violence of inflammatory action; to release organic motion from the oppressive effects of threatened congestion when plethora abounds; to remove any known cause of irritation, when it can be done; to arouse to a proper degree of action any of the secretory organs, when inclined to fall into a torpid state; to protect and preserve the vitality of the surface and extremities of the system when great debility prevails and afford the necessary support;—these are some of the instances of artificial interference to which we refer. We mean therefore, that when any or all of these things shall have been performed, the physician is still dependent on an agency, which, when it is performed accord-

ing to certain laws petaining to the animal economy, present an exhibition of the process and produce the final result, which we call recovery; and this power, is the vis medicatrix naturæ; for the existence and agency of which, we are ready to contend.

If we contemplate this power with regard to the changes produced in the system in any particular instance, say, the retirement of plethora, as it is associated with inflammatory action, the process of nature will be identically the same as to plethora alone, whether she shall have been released from the thraldom by blood-letting, catharsis, diaphoresis, or inanition. So soon as the plethora shall have been removed, the inconvenience or threatened injuries, which it had produced, will be made to retire, by the agency of the vis medicatrix naturæ; that is, by the laws which govern the motions and functions of animal life,—now called the recuperative power.

We have been careful in explaining our views of this important power, because every curative intention, if it be philosophically instituted, will have a proper and constant reference to its indispensable agency, and because a suitable acquaintance with its laws, is one of the surest guides to therapeutics. We are desirious also to be explicitly understood, that in maintaining the existence of the vis medicatrix, we are very far from assigning to it that absurd importance, which once led medical men to pursue the dangerous and inhuman practice of leaving their patients to languish in pain and anxiety, day after day, waiting for a crisis, the infallible indication of the course which the vis medicatrix intended to take for the removal of the disease.

Take an explanatory example or two. For one, let us turn to a case of pulmonitis. Admitting the presence and agency of the vis medicatrix, what is the part she acts, in the commencement of the attack. It is an obvious fact, that the impetus of the circulation, is dangerously violent, and experience has proved, that it must be restrained by blood-

letting. The inference then is clear, that in circumstances such as those which mark the commencement of this disease, nature is not to be trusted without the help of art; and the practice of all modern physicians proves, that the treatment necessary in such cases, is in direct opposition to the tendencies of nature. A still more unequivocal opposition to nature's movements, is necessary in treating a case of cholera. She loudly reports the necessity of evacuating the stomach and bowels. And here, by the way, whilst in one important respect she reports the truth, her efforts are so extravagant, and tend to an issue so adverse, that experience has taught us, that the vomiting and purging must be immediately arrested, or in a few hours the life of the patient will be lost.

Now if nature's indications are to be our guide, without restriction, the violent and destructive action which obtains in pulmonitis, should be assisted by a copious draught of hot toddy; and the worst instance of cholera should be aided with a good dose of tartarized antimony, and followed with a sufficient portion of some brisk cathartic; either of which would be absurd. It is after the proper reduction of the morbid action of nature, by blood-letting, &c., in the one, and the suppression of her morbid evacuations by the exhibition of the necessary quantity of opium, &c. in the other, that we look for the recuperative process which is the work of the vis medicatrix naturæ. It is true nevertheless, that nature's pointing is not unfrequently well enough in accordance with the most judicious curative indications. In cholera, as was noticed above, the evacuations with which the disease commences, to a certain extent, are always useful. Being morbid, however, they continue and progress with such rapidity and copiousness, that the balance of excitement is lost. In proof of the correctness of this remark, it is a fact, that in almost every instance of this alarming affection, after quieting the storm by the administration of opium, &c. additional

evacuation by the aid of calomel and other appropriate medicines, not unfrequently by the lancet, is necessary for the restoration of good health. Also, in bilious fever, and other diseases, which chiefly affect the abdominal viscera, a distressing nausea and inclination to vomit are most certainly relieved by the operation of an appropriate emetic. And almost all ordinary instances of diarrhœa, and perhaps every case of dysentery is best treated with frequently repeated doses of some suitable cathartic, say caster oil, modified by the addition of laudanum. We have already admitted, that bleeding at the nose may chance to occur in cases which loudly call for blood-letting, and yet it does not follow, that this practice is admissible whenever the nose bleeds. In typhus fever, bleeding at the nose may be critical. It often is, and much blood may thus be spontaneously lost, with obvious benefit, in such cases; and yet at the same time, copious blood-letting from the arm, in most, if not all instances of this kind, would be fatal to the patient. It is not at all wonderful, therefore, that medical philosophers should have arrived at that point of elevation from which they look down and refuse to be guided, blindfold, by the uncertain directions of nature, when she is in the thraldom of diseased action. As properly we might consult an infuriated maniac, respecting the propriety of securing him in a straight jacket.

Aided by a suitable knowledge of anatomy, physiology and pathology; observation and experience have raised therapeutics above the uncertainties which marked the practice of the servants of nature. And now, instead of a blind subjection to the dictates of nosology, which, with anxious expectations and doubtful calculations, looked for crises which seldom occurred, our therapeutics gives a much more certain direction to our practice, and enables us to discover the errors, and correct the theory and practice of men, whose opinions in their day, were repeated as precious and infallible

aphorisms, and carefully recorded and preserved as being worthy of universal and perpetual regard.

The object of the literary labors of physicians of every age; the intention of all has been, to acquire an approximation to a perfect, or trustworthy method of treating diseases. All their labored theories, have been subjected to the test of experience, the faithful pioneer which has been engaged for ages in preparing the way for the introduction and establishment of legitimate therapeutics. She continues cheerfully and promptly to perform her part, determined to continue her assistance until the healing art shall have been perfected. Under her direction and patronage, the profession has laid aside as lumber, many of the works which once held conspicuous places in the libraries of physicians, and many others are still retained and preserved, rather as monuments of antiquity, than as valuable practical guides. Every judicious practitioner of medicine now knows, that men of great learning and little experience, can form opinions, frame them into theories, and write specious treatises in their defence. But experienced therapeutics comes to the sick bed, and proves the worth of doctrines; it weighs them in the balance of clinical exactness, and however specious the arguments of their inventors, if deficient in practical truth, it rejects them. For after all, any system of theory and practice of physic, to be reputable and lasting, must be successful; just as certainly, as that the greatest physician is he, who makes the most and most distinguished cures.

CHAPTER II.

AN INQUIRY AS TO WHAT IS TO BE UNDERSTOOD BY THE TERM, INTENTION, IN THERAPEUTICS.

No medical prescription can be judiciously offered, without a suitable reference to a well instituted curative indication. No curative indication can be philosophically instituted, without an appropriate reference to the pathology of the case under consideration. No truly philosophical view can be taken, without a competent knowledge of the physiology of the organ, or system of vessels supposed to be the seat of disease; and no medicine can be administered with becoming confidence, until it shall have been proved by sufficient experience, to produce the intended effect. It is the business of the therapeutist, to lay his foundation sure in a judicious intention, and to carry it into effect in a workmanlike manner.

Curative indications have varied at different times, and in different countries, as often as the medical theories on which they have been based.

The principal intention of the Humorists, was to correct the condition of acrid humors, which they considered to be the causes of diseases. This they attempted to accomplish by administering remedies which were supposed to concoct, or to bring about such a change in those humors, as might fit them to be eliminated through one or more of the emunctories, which served as sewers for their complete discharge.

The Mechanicians formed their principal intention with a view to the removal of obstructions, and to the restoration of a suitable freedom of the vital functions, so as to recover

the permeability of the vessels supposed to be obstructed. The technical phraseology relating to obstructions, originated with this class of physicians. With them, steel was an important remedy. It gave additional impetus to the circulation of the blood, by increasing its momentum; and the angular figure of the particles, or atoms of steel, were supposed to arm the blood with spiculæ, which served to break up and fit for removal, the obstructing materials which caused diseases.

The leading intention of the excellent Cullen, who revived and taught the fundamental doctrines of Hoffman, was to remove the spasm of the capillary vessels, and give general freedom to the circulation; and then regulate the reaction with suitable reference to other subsequent intentions, which may be considered to have been as numerous as the different kinds of diseases which he describes, and the different remedies which he recommends for their cure.

Homeopathy, which first prevailed in Germany, is the most extraordinary doctrine that has perhaps ever been advanced in any age. Its founder is Dr. Hahnemann. It consists in administering remedies, calculated to produce a series of symptoms, precisely similar to those constituting the disease. These artificial symptoms, take place of the natural ones, which will thereby be driven away; and as these new symptoms are the effect of remedies, they will subside as soon as the remedies are discontinued. The principles of therapeutics in this doctrine, are to be sought for in the relation existing between the known effects of remedies on the constitution, and the symptoms of the disease, of course there can be but three indications—First, opposition. Second, heterogeneity. Third, similitude. This last, which is called Homeopathic, is the only and most efficacious one. It is explained as follows: "When the specific effects of a remedy are perfectly similar to the natural disease, they reach

the organs that it has affected. But as two similar diseases, cannot exist at the same time, in the same point, and as the artificial are more intense than the natural affections, the latter give way, and the former are substituted, which also soon disappear. Reaction is here salutary, because the Homeopathic remedy, acting on the organizm exactly like the existing disease, this last will react in an opposite direction, that is, in favor of health.*"

The Brunonian system, is distinguished by having chiefly insisted on one invariable intention, which was, to overcome an asthenic condition of the system; that is a condition of debility, by the employment of stimulants and cordials; to reduce the excitability of the system, by elevating the excitement, until it is adjusted to an imaginary graduated scale of health.

There are very strong proofs of acute discernment and fertile genius in this theory; and whatever deficiencies, imperfections, or inexplicable mysteries may be thought to adhere to it, Dr. Brown has contributed greatly to the improvement of medical science.

Dr. Rush profitted much by the speculations of Dr. Brown and approximated nearer to the truth. He perceived the mutual dependence of excitability and excitement; the reciprocal elevation and depression of vitality and sensorial influence, and he carefully and properly turned the attention of the physician, particularly to the protection of the vital organs; availing himself of the leading principles of Dr. Brown, in view of the general system, and when there was occasion, having recourse to such particular agents, as the experience of the profession had proved to be necessary for the correction of particular organic affections. His leading intention, on general principles, therefore, was, to equalize the excitement, in view of an imaginary scale, adjusted to the tone of

* Quebec Medical Journal, No. 7, 1827.

the vessels of the organ or structure affected by the disease. And then his subsequent intentions, were instituted and carried into effect, as daily occurrences might direct. A method of treatment corresponding to this, will be laid down more distinctly in the sequel of this work.

The distinguished successor of Dr. Rush, has adopted a theory which wears an aspect very different from that of his predecessor. "Conveniently situated for the purpose, the *stomach*," says Dr. Chapman, "is probably the throne of the vital principle, from which, *would seem* to emanate an influence, that, diffused over the system, preserves the order of the parts, and sustains the vigor, tone and well being of the animal economy."

"Languido ventriculo, omnia lauguent."*

"Assailed however by impressions which it cannot resist, this organ, as the centre of association, becomes the seat of the first link in the chain of most diseases, and is always the chief medium of the operation of remedies in the correction of morbid derangement." (Chapman's Therapeutics, p. 95, 4th ed.)

Whatever superior importance may be hypothetically or truly assigned to the stomach, as the centre of associations, and however much the elevation of that viscus, may serve to divert attention from the fundamental principles of Drs. Brown and Rush, we are inclined to think, that the best parts of all modern theories, directly or indirectly are derivative from Dr. Rush, however unwilling the authors may be to make the acknowledgment.

If we are correctly informed, the professor of the Institutes and Practice in the University of Pennsylvania, is much more entitled to commendation for his attempts to arrange, classify and explain diseases, with a proper reference to the organs and structures which are known to be the seats of

* With a languid stomach, every thing languishes.

them, than for his attempts to declare independence of Dr. Rush. And although pains may have been taken to conceal the fact, modern teachers of medicine, avowedly nosologists, either knowingly or unknowingly, have so completely interwoven into their systems, the great truths taught by our illustrious countryman, that the discerning student cannot fail to see, they all wear his livery. It is true, nosology fitted up in dress so respectable, in comparison of what it formerly was, may now be considered quite philosophical.

In this way, the nosologists of Europe and of the United States, appear to have extricated the science from mechanical, chemical and humoral errors which had so long prevailed. But it is not our purpose to present a system of Therapeutics based on any nosological view of the profession. Indications predicated on such premises, must inevitably misguide, unless it can be clearly made out, that the groups of symptoms which are taken collectively for the description of each particular disease, are always the same in similar cases, and always succeed each other in the same order. But we all know that this is not the case. They vary with the constitution, temperament, age, &c., of the patient; and each of the variations are again liable to other additional modifications and changes, in consequence of the remedies which may have been used, and of the effects of climates, seasons, and modes of living. And there is yet another difficulty, which is calculated to add materially to the embarrassment of an inexperienced nosological practitioner; which is, at the same time, that there are distinguishing phenomena by which particular diseases may be known, there are appearances, more or less common to all, more or less conspicuous, according to various circumstances. With all these difficulties in view, it would seem that "a perfect synoptical arrangement of diseases is impracticable." And it may be safely predicted, that no perfect system of nosology will ever be devised. Something useful may be accomplished by those

treatises, whose divisions and distinctions have been predicated upon the natural and obvious divisions of the human body; having their various departments to accord with the known differences of organism. But even this device, specious as it appears to be, has its accompanying difficulties. For at the same time that there are symptoms which are considered definitely to point to a particular diseased organ, we constantly see additional phenomena supervening; sympathetic, incidental and variable, to an infinite degree; and therefore, on the whole, we conclude, that a truly philosophical system of therapeutics cannot be framed, if it be made to conform with any known system of nosology, however classical or scientific its doctrines may seem to be.

CHAPTER IV.

AN ANNOUNCEMENT OF THE COURSE WHICH WILL BE PURSUED IN THE FOLLOWING THERAPEUTIC INSTRUCTIONS.

We propose, first to make ourselves well acquainted with general principles and their modifications, and then endeavor to show how this general information will be applicable and useful in the investigation and management of particular diseases. In our observations we shall be guided also, as much as possible, by the well known divisions of the human body, admitting disease to be specific and particular, whenever it is known to demand particular and specific treatment, in consequence of any definite and well known peculiarities which invariably pertain to it when it, fastens on any particular organ. By this method, it is hoped, we shall be enabled to secure the necessary discrimination, so as to direct our practice against the symptoms which are the real indices of disease and avoid the danger of being misled by those which are merely incidental. We deem it important to be fairly understood in regard of the discriminations just now referred to, and therefore we will add a practical explication or two.

Without a scientific reference to the anatomy and physiology of the organs affected in a case of enteritis, in its commencement, the time most important for a successful defence against its dangers, the patient and even an unwary physician, may be led to consider it a mere windy cholic. Heating draughts of course may be administered, probably perseveringly repeated, even alcohol in dangerous doses may be prescribed, when the only proper indication is very copious blood-letting and other suitable evacuations. So also vari-

ous other inflammatory affections, at the onset, might be considered, as nothing more than peculiar expressions of debility, and be subjected to treatment equally erroneous. By the same kind of misapprehension, hemorrhages produced and kept up by an inflammatory action of the blood-vessels involved in the disease, have been treated with tonics, to the destruction of the patients; when appropriate evacuation and judicious management might have insured recovery. We are aware that the friends of nosology, insist on the practicability of such general and specific description, as may serve with all necessary exactness, to guard against mistake. It is nevertheless our settled conviction, that the physician who is not prepared to support his nosology, by a mature judgment in respect to the condition of the affected organ, works blindfolded. Admit he may have in full recollection the whole series of symptoms which are put down as pathognomonic, in any given case, still even this will not be sufficient. The worst diseases do not develope the whole chain of symptoms which characterize them, until, in many cases, they have progressed too far for the safety of the patient; and in all, the disease must at the least have been established and its progress have advanced so far, as to render its management more difficult and its cure less certain on that account. Besides, if we even permit the physician to commence his operations before the entire character of the disease is displayed, this will serve only to increase his embarrassment. It is presumed that the agents to be employed will produce important effects. His attention must then be turned to appearances perpetually variable and evanescent, and he is therefore continually liable to be led astray by the agency of his own remedies. He must frequently meet with anomalies, bringing him endless embarrassment. Nosological practisers under such circumstances, would be prepared to imagine they had found new diseases. Those who have made themselves more conspicuous in this way, have gone

on accumulating their anomalies, until the stock of nosology has become an insupportable incumbrance. Unwilling to wander through the dark mazes of this region, in support of medical information, scientific men have at length determined to urge the necessity of a more perfect acquaintance with the remote causes of diseases, the circumstances which specify their determination on particular organs, and the effects of such determinations; and instead of the apparently classical parade of nosology, to recommend that kind of studious attention to anatomy and physiology, which prepares the well instructed physician, to trace out the pathology of any case which may occur to his observation, whenever there is occasion; and by so doing insure correct diagnosis.

The unwieldy materials which nosology had imposed upon teachers of medicine, as well as the embarrassment which it brought to the learner, was felt more particularly towards the close of the last century, when men of genius and enterprise, began to think of some device which would admit of more system and greater simplicity. The ingenuous work of Dr. Brown of Edinburgh, was an attempt of this kind, and served to give an impulse to improvement in our profession, which waked up Europe and these United States.

About the same time, Paul Joseph Barthes de Marmorions, who was born at Montpelier in France in the year 1734, and died in 1806, made an attempt to simplify the profession. He labored to analyse diseases into distinguishing groups of symptoms, which he called elements. And since his death Charles Louis Dumas, who died about eight years later than Barthes, improving on the elementary method of his predecessor, laid the foundation of what is called in France, the doctrines of the school of Montpelier. According to this doctrine, a pathological element is a simple disorder, an imaginary assemblage of particular symptoms, which are generated simultaneously, almost never separating, produced by known causes, having definite crises and periods, requiring a

special method of cure, having well known *post mortem* appearances, attacking one or another person indiscriminately, or any one organ or tissue of vessels indifferently; possessing the power, nevertheless, to affect some one of these in a particular manner; and sometimes some one among them exclusively. An element was not a pathognomonic symptom; it was a disease. But instead of a catalogue of an almost endless number of diseases; they attempted to conceive of a more limited number of the elements of disease.

They were looking toward the same object, which was the great desideratum of Dr. Rush, when he was striving to prove that disease is a unit. They seem to have thought, that there are elementary morbid affections, which under various combinations, take a leading part in the formation of all the diseases which can possibly attack the human body. And we must admit, that such a system, if fairly made out, would have served to simplify the theory and practice of physic. The theory of Montpelier however, although it had an estimation in France, corresponding to that of Brown in Scotland, was more the production of a fertile imagination, than of astute clinical observation. A few additional remarks will make this sufficiently clear.

According to this doctrine, we will suppose plethora to be an element. Plethora however, is more properly a predisposition to disease, than any thing else. There is however an approximation to philosophy in the specification of this particular, as an element in the formation of disease. So also pain is an element, and pyrexia, and debility, and spasm, &c. Now our object is to show the effect, which such an elementary scheme was intended to have on their therapeutics. The occurrence of plethora being ascertained, the proper intention is obvious at once. Too great fullness must indicate the necessity of evacuation. Pain, would indicate the necessity of administering an anodyne; spasm of some appropriate antispasmodic; pyrexia of antiphlogistics, and debility of

tonics. All this, at first view, looks very specious;—pathological elements directly indicating the most appropriate remedies. But the judicious physician feels it necessary to know, what circumstances may have concurred in producing the plethora; what the cause of pain; in what organ it is seated; in what manner the anodyne is intended to act. Is disorganization threatened which might make the anodyne pernicious? In a case of spasm, an antispasmodic is to be administered. The phylosophical physician inquires, what cause has produced, what irritation maintains the spasm? By what kind of agency is the antispasmodic remedy expected to produce relief? The elementary system appears to have been deficient in these essential points, quite unprepared to furnish satisfactory answers to these important inquiries. And yet there appears to have been so glaring a demand for such answers, it is rather surprising that something more satisfactory in relation to this deficiency, was not added. Again, spasm indicated the use of antispasmodics; if spasm be considered as an element, alas! we find it in tetamus, epilepsy, hydrophobia, hypochondriasis, cholic, and many other diseases. Then, valerian camphor, musk, ammonia, hoffman anodyne, hyosciamus and opium, would be common remedies for all these diseases. Debility, if considered an element, in like manner attends epidemic catarrh, influenza, bilious fever, typhus and typhoid fever, pneumonia typhoides, scarlatina, bronchitis, &c. Of course all these in common, would require stimulants, tonics and cordials: since, if the elements are to be our guides, whenever any of them appear, our indications must of course be, to employ their proper antidotes. The absurdity of which is sufficiently obvious. Dr. Brown's system partook too much of this defect. We presume, however, that the school of Montpelier intended their elements to be partial guides only; and under the correction of experience, they no doubt had their use. Even Darwin's theory of irritation, sensation, volition and

association, is better than none. After this preparatory digression, we return more directly to our subject.

Curative indications can have no more solid foundation, than an extensive and well digested knowledge of the causes, seats and nature of diseases; which implies a knowledge of the structures and functions of the organs or tissues which are diseased; and the nature and extent of the injury which they may have sustained. When we shall have made the necessary investigations in view of these particulars, we make up our judgment as to the character of the disease and have recourse to such medicines, as we may have learned from our own experience or that of others, to be effectual in similar cases. If the intention shall have been correctly appointed, and executed with skill and decision, the disease will retire; or its continuance will justify the conclusion, that it is incurable by the means so appointed. In some instances, however, when every thing pertaining to the curative operations shall have been properly planned and executed, and when a satisfactory yielding of the morbid appearances shall have proved the correctness of the whole, still the effect is not complete. In such instances, the obstinacy of the symptoms may be considered to be consequent on the existence of an irritation, which has become in some sort independent of the original affection, and which requires a modification in the subsequent prescriptions, and a longer continuance than usual, of the management which has been found appropriate and more speedily effectual in ordinary similar cases.

If more than one organ appear to be affected at the same time, or if the disease extend its influence to parts remote from the organ which was primarily affected, the intention of cure is sometimes first directed towards one organ, sometimes towards another, in succession; sometimes it has a proper reference to all at once, including within its scope the principal injury as well as any complication, whether they be sympathetic or secondary associations or consequences

which may accompany or follow it. Still, in each and all cases, a regard to the seat and nature of the disease is to regulate our therapeutic indications. And this is equally true, whether the patient be old or young, male or female, robust or delicate. In all cases the fundamental principles are the same; but different circumstances may require considerable modification in the details of the practice. Different remote causes, referrable to different climate, constitutional temperament, modes of living, intemperance, and sometimes sudden changes of residence, or of articles of clothing, or diet, each may require some modification of treatment; but any such variety will be a secondary consideration. It may make it necessary to introduce one article in place of another; or some one preparation of an important agent, rather than another; or it may require the application of the remedy or its introduction into the system, by a peculiarity of manner, suited to the case; still the leading intention will be the same.

An inflammatory affection, for instance, must be treated with evacuation and other corresponding remedies. This will be the general plan, whether the case under deliberation be violent or mild, recent or chronic; whether the patient be vigorous or feeble in constitution; old or young; male or female; an adult or an infant. The kind of depletion, or the extent of it, as well as the concomitant management, will be different in each. So far as general principles are concerned, the intention is the same, the practical details only are subject to variation.

A physician practising in conformity to these views, has incessant occasion to refer to physiology and pathology, and his discriminations will be clear, positive, and disengaged from the conjectures which are raised under the arbitrary empirical dictates of nosology. He will be prepared to judge of the modus operandi, as well as the value of the agents he may employ; moreover he will be in possession of the

only proper means of correcting his own theory and practice. It is true, nosology may assume the appearance of great precision, and with the display of its modern classification may be imposed on beginners as the only classical and systemmatic view of the profession. Yet, after all this parade, the art of healing, in that dress, is miserably imperfect, and therapeutic indications made under its auspices, must be conjectural. The physician who refuses to follow such a blind guide, and is directed by his own knowledge of physiology and pathology, is certain in his views, as to the seats of diseases. Well acquainted with the phenomena which attend on the healthy functions of the organs, he is at no loss to judge of the pathology of the case. It follows of course, that when he administers his remedies, he is prepared to estimate their effects, and judge whether they satisfactorily correspond with the therapeutic indication for which they were prescribed, or whether they approximate towards its accomplishment; and how far they fall short of it. In a word, he can decide with accuracy as to the propriety of pushing his intention, or retiring it; without unnecessary hazard or loss of time.

CHAPTER V.

THERAPEUTICS CONTINUED—CONSIDERATIONS IN RESPECT OF AGE, TEMPERAMENT, &c.

Having presented a sketch of some of the principal theories which in their day were in repute, in order to show what is meant by a therapeutic intention, let us attend to some particular circumstances, which will claim consideration, when there may be occasion to perform a work of so much importance. These have respect to age, temperament, sex, professional pursuit, habits of living, strength and debility; to the causes of diseases, their seats, the degree of their intensity, and the periods of their duration.

In youth, the nervous system is more acutely susceptible of irritation, and more readily takes on sympathetic action. Irritation, of course in less time by continuity, becomes complex and difficult of investigation; morbid action more speedily destroys the organ first affected, and extends its influence to the sensorium and to the arachnoid membrane. The stomach and lesser intestines of young people too, being more active in performing the functions of assimilation for purposes of growth, &c., are subjected to a more frequent and laborious service; those organs are, therefore, more frequently affected with congestion and inflammation. On these accounts, in all cases of sick children, the blood making organs ought to claim special attention. Irritations of the abdominal viscera are frequently very alarming; and if neglected, rapidly become dangerous. The secretions thrown off by the mucous surfaces, when in a state of irritation, have a tendency speedily to become inspissated, the exhalents are

embarrassed, the secretions diminished, till it would seem that the effect contributes as largely as the disease itself, to the work of destruction.

Croup, furnishes very prominent, and most frequently fatal examples of this peculiarity of affection. In children the villous coat of the intestines is more liable to be disorganized, passing into a gelatinous state ; hence the speedy occurrence of a cadaverous fœtor in cholera infantum.

From the whole we infer, and practical observation justifies the inference, that infants, children, and youthful patients, require a decisive practice, corresponding to the foregoing remarks. According to physiological and medical calculation, the energies of infants not only equal, but exceed those of adults. Vitality is greater in early life, than at later periods; all the vascular actions, whether healthy or morbid, are performed with greater activity. Inflammation, for example, is more frequent than in adults ; and it runs its course more rapidly, through its different stages, to disorganization and death. Greater promptitude and activity of treatment are necessary, and very decisive blood-letting when called for by the circumstances of the case. When blood-letting is required, it may commonly be considered to be imperiously necessary, and ought to be performed without attempting to substitute other evacuations. A speedy and decisive discharge of the fœculent matter from the bowels is also required in such cases ;* and in almost all others which call for medical aid. And when this kind of prompt and effectual treatment is withholden, overwhelming irritations or fatal congestions very often destroy the patient. It should be particularly remembered, that when such decisive practice is necessary, rigid abstinence from nutritious diet ought to be insisted on. In children, it will be found on careful examina-

* When infants and young children sicken, especially in warm weather, all drastic medicines are to be avoided or cautiously used. The mucous lining of their intestines can be ruined by one dose.

tion, in many cases, when they are seriously indisposed, that the abdomen is enlarged, proving, either that the intestines are too much distended, or that the viscera are swollen, or in the condition called hypertrophy. If the enlargement be consequent on fulness of the vessels, or a flatus, it will be known by making pressure with the hand; and in such a case, with or without blood-letting, sufficient catharsis will not fail to reduce the abdomen to its proper size and condition, and remove at the same time, all the morbid phenomena which were produced by the existing fulness of the portal vessels. If the enlargement of the abdomen resist the pressure of the hand, and especially if the liver, or any other viscus be discoverable by reason of its unnatural solidity, then, although cathartic medicines are imperiously necessary, still caution and time will be required in conducting the treatment; moderate repetition, rather than hasty decision, is to be pursued in such cases, paying a proper attention to the strength of the patient, until the indication shall have been accomplished. Alterative agents, together with a suitable repetition of cathartics; light and sparing diet; supporting the action of the stomach, liver, &c., with pleasant and suitable diluents. This is a summary view of the practice necessary in all such neglected cases. We will add only, that gelatinous syrups, and saccharine mucilages, which in adults are ordinarily consistent with dietetic views, are to be interdicted in the treatment of children, as such asticles are too nutritious, to be consistent with a true therapeutic indication.

The ordinary doctrines in Great Britain, France, indeed of most countries of the world, have been, that children, because of the delicacy and susceptibility of their organs, ought to be treated with the mildest remedies, or if we find it necessary to use active articles, to administer the smallest doses. The experience of the most judicious physicians in our country, has proved that our practice here, must be very dif-

ferent, in all cases of a similar character. It is true, nevertheless, that after a proper decision in acute cases, and also after the necessary impression shall have been made in those that are mild, much may be accomplished by management, and the continued use of appropriate and mild remedies. The tendencies of organic life to repair any injuries which may have been inflicted; the recuperative powers are so great in infancy and youth, that recovery is sometimes possible, when appearances at first are very unpromising; and there are chronic affections, in which decision would be improper; such are best treated with the gentler articles, and suitable management. Some of these are scrofula, rachitites, &c.

In the decline of life, all the vital functions are performed with less vigor, of course our therapeutics must be modified by considerations in view of that fact. Old men, as well as young, are liable to exposure and accident, and therefore likewise to injury, inflammation and fever in various forms. In all such cases, after duly considering that nature, tired with years, is slow in recovering strength; sparing in her elaborate productions, requiring time at every step; our treatment is conducted by the same general principles, in age, in middle life and in youth. Old age is, however liable to diseases peculiar to itself; diseases which seem to be, in a great measure, consequent on the wear and tear of life. These affections require the introduction of other considerations. It would seem that organism and organization long continued, and especially if subjected to any considerable extra exertion by intemperance, must sooner or later assume the condition of irritation. Irritation coming under the laws of association, will continue to spread itself, till the tissues in near affinity with the fretted organ, are brought into the train of morbid action. So the genito-urinary system, very often is made to exemplify this statement; when men advanced in years, are subjected to diseases which embitter all the recol-

lections of early life, in which they too much delighted. Dysuria, with its painful and fruitless efforts; dysuria mucosa, and other affections of the neck of the bladder; schirrus enlargement of the prostate gland and of the testicles; varicose enlargement of the blood-vessels of the testes, especially the veins; schirrus affections of the stomach and duo denum; schirrus and other affections of the liver; diarrhœa; catarrhal affections and tussis senilis; hypertrophy and enlargement of the heart; dypepsia; asthma; angina pectoris. In addition to these, the serous and mucous tissues become fibrous and cartilaginous, and the sensorium itself gives signs of fatigue by paralysis, &c. It will be obvious to the most ordinary judgment, that a palliative plan of treatment is all that can be instituted prudently in such cases, which, from the very nature of things are incurable. During the continuance of youthful vigor, organs and functions though often excited to excessive action, may continue in a condition approximating to their natural and healthful state. But as age advances, preternatural enlargements, irritations and indurations of parts often begin to prevail, and when such a state of things is consequent on excess in eating, drinking, &c., it is likely to continue on with increasing rapidity, until eventually, the organism becomes entirely disordered, and the proper functions cease to be performed. It follows, that moderation in the pleasures and toils of life, serve most effectually to prevent the distressing diseases of old age.*

*A note by my much esteemed, now deceased, friend, Dr. Peter Snyder, late of the city of Baltimore.

It is incalculable what good would result to mankind, if they could be impressed with a sense of the true effects of excessive organic action, habitually repeated. Reflecting people, if their observation on their own experience, were intelligibly directed by their sklilful friend, would generally be led into conviction of the inevitable debility and suqsequent disorder, that any organ long overtasked would fall into. If physicians were more thoroughly instructed in these physiological and pathological truths, they would address themselves to the people with a force of authority, by which the ignorant, yet honest mind, would feel, and by which it would be quieted.

We defer any additional remarks on the subject of age, and proceed to some considerations which have respect to temperament. Here we propose three general classifications; each of which we suppose to depend on a peculiarity in the structure of its respective tissues of vessels. The first, on that of the blood vessels; the second, on that of the nerves; and the third on that of the lymphatic system. In making these three general divisions, we have in view some of those evidences which appear satisfactorily to prove, that certain laws peculiar to each of them, do maintain a predominance over the remaining two, and indeed over the whole system. We also have in view, the fact, that the peculiarities which constitute organic temperaments, are not less evident, than those on which we rest these general divisions. After we shall have disposed of these, we may find it convenient to pay a suitable attention to the subject of organic temperaments.

There are many persons of both sexes, whose blood-vessels are very conspicuous, in all their sensible appearances. Their arteries, to the touch of the finger, express a firm and effectual consent with the systole and dyastole of the heart. The condition of the circulation affords proof of a firm structure, and ample calibre, in every arterial tube; and when in ordinary health, the veins of such individuals stand out in bold relief. Of such we are ready to say, they have excellent systems of blood-vessels. And this is true in view of two important considerations—First, if a person of this description should need blood-letting, it may be performed, commonly, with fearless decision; and if required, it may be repeated again and again; and under ordinary circumstances, it will be followed by a speedy reaction, that is, the return of a free and active circulation, which follows the weakness consequent upon blood-letting. We use the same word in those cases, where conspicuous signs of debility give place to an improved circulation. Again, should blood-letting have been omitted in such a case, at any time when it would have been

particularly useful in the commencement of an attack, the firmness of the vessels will be found capable of sustaining the stress, a longer time without running into a state of fatal congestion; which often occurs to persons of a different temperament. Besides, persons of the sanguinous temperament, according to this view of it, may often be relieved, though late, by blood-letting cautiously and frequently repeated, apparently in circumstances, in which the same practice, however carefully performed on a patient of a different temperament, would be improper and produce a state of things the most occult and dangerous, terminating after metastasis or other embarrassing phenomena, in a way to make it very suspicious, whether the prescribing physician were not ignorant of the true nature of the case. Moreover, it is an important fact, that persons of this temperament, when attacked with an inflammatory affection, ordinarily present symptoms which happily lead to a suitable defence, without delay. The excitement in such cases is usually intense and vascular, the pulse full and incompressible; the respiration indicative of the degree of stress imposed on the pulmonary vessels; appearances proclaiming the necessity of blood-letting and other evacuations. We will add only, that among those classes of mankind, who are engaged in active and laborious employments from their youth up, we find the most distinct and the greatest number of instances of this kind of temperament. And of course, as the best heritage is such a stability of constitution and firmness of texture of the blood-vessels, as those persons are heirs to, they must be ranked among the most fortunate, who are blessed with an education and lot of this sort.

In treating of the sanguineous temperament we were able to invite attention to plain facts, visible and tangible to ordinary observation. We regret that it is not in our power, to be equally clear and intelligible on the subject of nervous

temperament. This important tissue of vessels, which bears an imperious sway over all the motions and functions of the human body, is subject to medical observation, only through the phenomena by which their influence is expressed. Persons of this kind of temperament, are commonly as remarkable for the delicate appearance of their skins and almost entire concealment of their blood-vessels, as those of the sanguineous are for the conspicuous enlargement and display of theirs. They are generally such, as have been too tenderly brought up; frequently, they have a full and fleshy appearance, but are ill able to sustain fatigue; and the greatest number of them, are found to be of the softer sex. Persons of this description, when seriously attacked with fever, exhibit phenomena so various and perplexing, as to make it extremely difficult for a young and inexperienced physician, to avoid mistake. Whilst the ordinary symptoms attendant on fever are scarcely discernible, the sympathetic appearances are intense and alarming, to a degree far transcending a just report of the existing irritation. And very often, at the same time that violent pain, spasms or even convulsions, occur in quick succession, there is no obvious evidence of inflammatory action, or of considerable organic injury. In such cases, the morbid influence by which the disease is kept up, is confined to the nervous system, whilst the blood-vessels escape irritation. The degree and manner of disturbance of the blood-vessels are expressed by frequency and irregularity of the pulse, whilst the circulation of the blood is not perceptibly accelerated. The appearances, generally, are such as indicate debility. And this makes the principal difficulty. The debility is indirect, and the use of wine or alcohol will serve only to increase the disease. It is true, excitement of the blood-vessels languishes, as if partially forsaken by the vital powers of the system, whilst there is a morbid determination of those powers on the nervous tissues. On this account, although wine and alcohol are pernicious, stimulants

of a certain kind are found by experience to be necessary; such as first the application, externally, of rubific agents, sinapisms, &c.—internally, of an infusion of cloves or capsicum; Hoffman's anodyne; Russian castor; assafœtida; lobelia inflata; oil of turpentine, &c. These articles, judiciously administered, have a tendency to correct the morbid aberration of the sensorial influence, and of course, to relieve the nerves by rousing the blood-vessels and bringing forward, a fair expression of the state of the system. When this shall have been accomplished, it is usually found, that small or topical blood-lettings, frequently repeated, gentle aperients, with or without the addition of a suitable portion of calomel, rubific frictions, blisters, &c. constitute the kind of practice which is proper in such cases. And to guard the state of convalescence, the patient should be advised to repose, substituting frequent friction for exercise, till strength is recovered; afterwards, cold bathing, agreeable and mucilaginous drinks, a tranquil state of mind; entertaining company and conversation; passive exercise, as riding in a carriage; and at length moderate labor.

By the lymphatic temperament, we mean that peculiar texture of the system, which renders it more liable than others, to such morbid affections as are particularly referable to the lymphatic system. Persons of this description are more nearly assimilated to those of the nervous temperament. In each of these, the blood-vessels are less conspicuous, than in those of the sanguineous. Those of the lymphatic system, display their blood-vessels least of all. Both are inclined to be fleshy, but the latter most readily become fat. If affected with fever, neither of the two will exhibit a bold arterial action like the sanguineous system, but the lymphatic patients exhibit a more distinct expression of strong arterial action, and admit of more decisive blood-letting than the nervous. Spasm and other appearances indicative of a prevailing determination of the sensorial influence upon the muscles, do

not attend; and this constitutes the most conspicuous difference in respect to these two temperaments. There is, however, another kind of discrimination, which may be made with great certainty. At the same time that persons of a sanguineous temperament, present a conspicuous display of their blood-vessels, their skin is freely expanded over the whole body, and can be lifted with the thumb and finger, with considerable ease, not being bound down to the cellular substance. But it is not so with persons of a lymphatic temperament. If an attempt be made to raise the skin in these, after the manner just described, it will be found to cleave fast to the cellular substance, and to be fitted to such a degree of tightness, as to make it difficult and even painful to grasp or raise it up at all. In persons of this temperament, it would seem, that local irritations do not so constantly make that kind of impression on the general system, which makes up general sensation, and any morbid affection without exciting much attention passes into a chronic state; the condition of the organs is changed, morbid secretions are elaborated; new and morbid growth of parts is produced; which imperceptibly go on involving the lymphatics in their vicinity; and in many instances the unhealthy condition is extended too far for recovery, before the patient is apprised of any danger; as is the case, for instance, in suppurative erysipelas. So much for these prominent characters of general temperaments.

There are temperaments also, which we distinguish with a reference to some particular viscus, each of which, from some peculiar constitutional or accidental condition of its texture, or from some sort of peculiar irritability, is first or most seriously affected by any attack of disease which befals persons of this description. Under this view of the subject, we have persons of a phrenitic temperament, others of a pulmonic temperament, others of a gastritic, and still others of a gastro-enteritic temperament; an

hepatic and so on in reference to any of the organs, which, when diseased can so enlist the sympathies of the system, as to produce general pyrexia.

We intend to be understood, that at the same time when one of the three general temperaments prevails, there may also exist a particular or organic temperament, and that the particular affection will be more or less modified by the general temperament. By way of illustration, a patient of a sanguineous temperament, may be constitutionally or accidentally liable to attacks of pulmonitis, as also may be persons of either of the remaining two. Of the three general temperaments, a patient of the sanguineous, will be most easily manageable, and the disease will be less likely to be followed by an ill condition of the lungs. The lymphatic patient will be managed with greater difficulty, and there will be greater cause to fear that the disease may produce that state of the lung which ends in phthisis pulmonalis. Persons of this temperament, when affected by inflammation of the lungs are liable to effusions, and in the absence of inflammatory symptoms, to that particular form of pectoral disease, which is called pleurodynia. Persons of either of the three temperaments, may be liable to gastritis; the case is most manageable and the prospect of recovery best, in the sanguineous. Persons of either of the three, may be intemperate in eating and drinking, and thus subject themselves to a predisposition to hepatitis. The prospect of the lymphatic patient, in such a case, will be the worst; that of the sanguineous, best. If the liver or any other important viscus be seriously affected in a person of a lymphatic temperament, an extensive catenation of the lymphatic tissues, including the whole glandular system, will be implicated in a manner corresponding to the lymphatic association of those parts of the system. And very often, the parts which are thus sympathetically involved, are in the end as seriously affected by the morbid action, are as much distressed with pain and dis-

organized by disease, as the viscus, which was the original seat of the complaint.

The general influence of the nervous temperament is likewise conspicuous. Persons under its dominion, will often exhibit such entire submission, that at the same time that an alarming organic disease is committing its ravages on some important structure, or viscus, the nervous symptoms are so strong and predominant, that the true cause and seat of the disease which is threatening the destruction of the patient, are with difficulty detected; too often they have remained undiscovered, till recovery was impossible. We have known bilious fever consequent on great congestion of the liver and portal vessels, to commence its attack in the garb of hysteria. Globus hystericus being the chief inconvenience felt by the patient for the first entire paroxysm; and belching, borborygmi, dysuria, &c. were the only prominent symptoms, till moderate blood-lettings and frequently repeated cathartics, served to disclose the true character of the disease. Persons of the nervous temperament are very often the subjects of the most serious chronic affections of the liver, spleen, and mesentery, which are secretly undermining life. The true condition of things is not suspected, because the patient complains of low spirits, head-ache, habitual cholic and constipation. And so also of many other similar affections, such as dyspepsia and subacute gastro-enteritis. It is important that we should diligently acquaint ourselves with these diversities of temperaments, and, ever intent on the detection of the diseased organs, take care that none of these fallacious appearances, none of these sympathies shall lead us astray. Indeed, this should be a constant practice in every case of fever. And in all cases attended with pain in the head, thorax, or abdomen, we ought to make diligent inquiry into the state of the important viscera; taking great pains not to confound appearances that are merely sympathetic, with the pathognomonic symptoms of the disease. In the mean time,

we may profit by our acquaintance with the sympathetic relations, which obtain in various morbid affections, as they serve to prove, that there may be excess of action threatening destruction to one organ, whilst there is deficiency of action in another; making it important that we should find ways and means, to divide, divert, or extinguish the irritation existing in any case. That there may be general debility, at the same time that a morbid excitement is threatening destruction to some particular organ; of course calling for the employment of some measure, which may divert the excess of action from the suffering organ and diffuse it throughout the general system. With intention to produce such changes, we associate with the use of internal general agents, the external application of issues, antimonial plasters and epispastics; all of which are repeated or perpetuated, according to circumstances.

The persons of women are more susceptible of injury, their nerves more readily take on irritation, than those of the males. They are liable to diseases peculiar to the sex, as well as those common to both. Moreover, their ordinary diseases are subject to modification through the influence of their peculiarities. The uterus subjects them through a great part of life, to a periodical inconvenience in the secretion and discharge of the catameniæ. This is liable to be checked or suspended; and when either of these occurrences takes place, it requires the most careful attention. Indeed, so great is the influence which this secretion has on the female system, that it may be considered to participate, more or less, in producing all the extraordinary modifications of the diseases of women. With a majority of the sex, the uterus may be considered the central point to which may be referred, nearly all the sympathetic affections which obtain from the time of puberty, till the menstrual secretion disappears. So long as this function is preserved in natural condition; animation, activity and health abound; ill health

and a long train of inconveniences soon follow its suspension. If a woman, when in this condition of suspended catamenia, should have an attack of fever, or be subjected to an inflammation of any important organ, her disease in either case, will become more difficult to manage, on that account. Inflammation or congestion will make more extensive and speedy progress; and if there should be appearances like catamenia, at any time whilst the disease is raging, the discharge, on examination, will commonly prove to be a mere hemorrhage, showing that the uterus, in such cases, is liable to be greatly excited.

We have offered these few remarks, with a view to inculcate the necessity of a strict attention to this important and interesting peculiarity of the fair sex; for when any other irritation may have been instituted for this discharge, it is highly necessary that we should be aware of it in time. Intelligent females universally expect a due degree of attention to a point, in which they all know their sex is so deeply concerned; and therefore an oversight in regard of it, would inevitably leave an impression unfavorable to the reputation of the profession.

If a woman, after some imprudent exposure, by which the catamenia shall have been suspended, should be seized with a violent affection of the head, lungs, or stomach, calling for a copious depletion, it sometimes happens, that a large blood-letting, not only relieves her of her painful affection, of whatever kind it may be, but it will serve also to bring about a complete restoration of the suspended secretion. If, however, this should not follow, it is necessary to add a sufficient repetition of appropriate cathartic doses, aiding them with suitable management, until the ultimate intention shall have been accomplished. If the suspension be the discoverable cause of complaint, then regard must be had to the general condition of the system, particularly to the great blood-making organs. If the suspension be the effect of general

debility, it is vain to look for its restoration, until a better state of general health shall be established. If it be consequent on some organic disease, the affected organ must be rectified, and then the inconvenience, which is the effect of it, will retire of course.

There are also peculiarities incident to women, because of the vastly important circumstances which attend parturition. One of these has respect to the condition of the abdominal viscera, when they shall have been made weak by compression, and injected in consequence of the retirement of that compression. When this occurs, it requires to be treated after the manner of enteritis. Another has regard to the violence of the throes of the uterus, and the consequent rude distension or contusion of the vagina and os externum. Injury in this way, followed by inflammatory symptoms, will require a treatment like any other inflammatory affection.

There is a third which has respect to lactation. If lactation only be implicated, the milk fever is the concern only of a day, and any accidental interruption of the function of the mamma, will often produce great disturbance for a day, but it usually retires on a very moderate degree of evacuation and suitable attention. This inconvenience is vulgarly called the weed.

CHAPTER VI.

THERAPEUTICS—STRENGTH AND DEBILITY, TRADES, PROFESSIONS, HABITS, &c.

When we speak of strength, in relation to the practice of physic, we do not intend merely a healthy and vigorous condition of the animal functions, in which we perform with ease and comfort all ordinary exertions; we have respect more particularly to the physiological and pathological calculations of strength; to the expression given of it in the organic action itself, in the motion of the arterial system, and in the support it affords to the vital functions. And when we speak of weakness, we do not intend merely an inability to run or labor, but also that feebleness in the motion and action of the organs essential to life, which is sometimes experienced in the commencement of fever, as also, that species of debility, which always occurs towards the close of a very violent or long protracted disease. The two states of the system, strength and weakness, are correlative; the estimate which we make of them, is always comparative; and our estimate will be more or less certain or useful, according to the correctness of our standard of judgment, and the accuracy with which we learn to apply it. To acquire a sound judgment in this particular, is one of the great points of skill in our profession; and an approximation to perfection in it, is within the reach of a well directed experience.

There is a difficulty, nevertheless, in making the attainment; inasmuch as the estimate must be accommodated to all the variations of circumstances consequent on difference

of climate, education, manner of living, and temperament. The physician should therefore begin to pay attention to this subject, at the commencement of his studies; and it is proper, that he should be informed at the threshold of his profession, that books, even when aided by the best instruction, will not afford the kind of information, which is particularly necessary in respect to this subject. It must be the result of his own observation. He must pay attention to a sufficient number of instances of the several distinctions above specified, and make himself acquainted with the pulse and general appearances, which mark the healthy and vigorous state of each of them. And as opportunity may serve, he must in like manner make himself acquainted with the pulse and other circumstances, which attend on each, when in a state of debility. Having drawn the two lines of distinction, his experience will soon enable him to conceive of all the intermediate grades that can be usefully distinguished, from the highest point of inflammatory action, down to the degree of debility which ushers in death; a standard of judgment, which once regularly formed, will admit of a satisfactory application in all cases. Therefore, as early as possible, the student should cary out the investigation in reference to some one particular classification of persons, as often as it may be convenient, until his judgment in regard of that one, shall have been matured. Then, one classification of estimates so matured, will afford much facility in the subsequent prosecution of similar investigations. At length, having acquired a general view of the subject, he will be prepared promptly to perceive the due degree of strength, or debility, which may obtain in any given case, and to prescribe with judgment. Having attained thus much, he will be qualified to commence the kind of observation necessary to prepare his mind to estimate the marks of debility, as it exists in different diseases, and in different patients.

After these general remarks, we are prepared to notice

some particular kinds of debility, as explanatory of our views. There is one which is expressed by a sense of langour and lassitude, which comes on abruptly, and the cause of which is scarcely known by the subject of it. This is the kind of debility, which is felt often at the commencement of fever, and is almost universally the effect of a general fulness of blood, or of a morbid determination of the circulation on the brain, or of an introversion of it upon the abdominal viscera. A condition of things analagous to this, is found to obtain whenever any important viscus is in a state of congestion. It is the more necessary, therefore, to be able to distinguish it with certainty; because the kind of cordial treatment, which would be correct and beneficial in a case of debility, properly so called, would be highly pernicious in this. Physicians have very correctly given to this kind of weakness, the appellation of indirect debility, and so long as it is kept up by plethora or congestion, the general plan of treatment must be evacuant. And in fact, this kind of practice must ordinarily be continued until the system shall be reduced to the state which is distinguished by the appellation of direct debility.

Direct debility, as we propose to distinguish it, is debility in consequence of depletion, inanition, or exhaustion. The organization of the system is to be considered as being entire; or if any organic injury may have had, or still has a place in any instance which may included in the definition, it is to be viewed as already cured, or fairly taking on the condition which we call convalesence; or at the worst, a disease acknowledged on all hands to be a disease of debility. It may be produced by loss of blood, either suddenly and copiously abstracted, or by being frequently repeated in more moderate quantities. It may be produced by catharsis, diaphorsis, emesis diabetes, inanition, or by protracted disease, as dysentary, &c. In each and every case of direct debility, cordials, suitable diet, and management, constitute the proper remedies.

There are however a great variety of intermediate shades or modifications of debility, the result of circumstances which take place under the observation of the physician; in which there is an obvious participation of both direct and indirect debility; sometimes the one and sometimes the other, being most conspicuous. These apparently contradictory circumstances, take place in many instances of organic disease, and in almost all which become chronic. We have preferred the use of the term intermediate, because the cases in which they occur, require a treatment which necessarily contemplates a qualified and variable course; such as accommodates itself to the peculiarity of the case. That is to say, we alternate the use of tonics and cordials with that of suitable evacuations; or we employ such a combination of agents, as is thought to produce a mediate effect. Such is the calculation in the use of alteratives.

There is yet another distinction to be noticed, a species of debility, which is produced by too long a continuance in cold and damp places, or in places not sufficiently ventillated, or from which the solar light is excluded. In all these the atmosphere is more or less insalubrious, and vital heat is imperfectly sustained. Something very nearly resembling the same condition of things, may be produced, by living on innutritious diet, or by too rigid abstinence, long continued. It may befall persons engaged in sedentary employments, and more particularly such of this description, as habitually use tobacco, snuff, or opium. In all the cases there is a similarity of appearance. The subject of it is pale, wan and indolent; the arterial action feeble and inefficient; the arterial tube small, and apparently elongated; that is, the pulse is cord like. The very imperfect manner in which the blood is propelled to the extremities is obvious, the red particles are not visible in the skin. After these appearances have continued a sufficient length of time, the absorbent system begins to fail, which is evinced by œdematous swellings of

the lower extremities. The tongue becomes tremulous, which with the gums become pale. In all such cases, in whatever way the debility may have been induced, there will be a constant tendency to a concentration of the blood in the vessels of the viscera, and sooner or later, the continued distention of the intestinal vessels, must superinduce some sort of organic injury. The different viscera are not all equally liable to be thus affected, nor the same organs in different persons. The pallor affords visible evidence that the skin fails to perform its proper functions, consequently the lungs are compelled to sustain preternatural elaborations, by which they frequently become irritated, and take on latent and chronic phlegmasia, terminating in phthisis. In those who are brought into this state of debility by living on innutritious articles of diet, appearances present themselves in form of dyspepsia, cholic, flatulence and eructations, which appearances give notice of the failure of the abdominal viscera. The spleen or liver or all the blood making organs become disordered; very often the lymphatic ganglions of the mesentery are involved in the common ruin, which is made manifest by an enlargement of the abdomen attended with marasmus.

Here it may be proper to remark, that the reverse of all this is sometimes exhibited, when some one or more of the important viscera are diseased, and all the appearances of debility which we have described under this head, are exhibited as the effects of the diseased organs. In almost all cases of this sort, and in many of the former, after the debility has long prevaled, there is produced in the system a predisposition to turgesence of the cellular substance, and of those vessels, generally, whose office it is to elaborate and circulate the transparent fluids. It is believed, that this is most commonly the case, when the subject of it is marked with the peculiarity of structure which we have described under the distinction of the lymphatic temperament. Ordinarily the

first visible indication of this state of things, appears in an œdematous swelling of the feet and ankles.

We have considered the instances of debility, last described, as they appear, when produced by remote causes acting on the system according to general laws, and treated the diseased condition of particular organs, as being consecutive on the long continuance of the debility which is followed by morbid determinations of excitement, and subsequent disorganization of those viscera, or structures, which become affected. Although these views will often correctly apply, yet a majority of all such invalids, wherever found, will have had the commencement of their indisposition in some organic disarray ; in some nucleus of congested vessels, which subsequently spreads itself, by an inoculation of the adjoining and corresponding parts, but often spreading itself so insidiously, as scarcely to produce painful sensation, even in the organ in which it is seated. And this state of things ought to be suspected, in any or all of those cases, of whatever rank, age, sex, or condition in life, where the invalids complain of weak lungs, dyspeptic stomachs, weak and irritable nerves, &c. &c. For want of this precaution, it has often happened, that tonics, stomachic bitters, assafœtida, castor, ether and opium, have been administered, when they served only to amuse and destroy ; and in fact, it was necessary to have had recourse to remedies, which are effectual to remove organic disease. In many instances of debility consequent on a chronic affection of some organ, the susceptibility of injury from the improper use of stimulants, is greatly increased. Not merely a predisposition to morbid action exists in the affected organ, but an inflammatory condition of the subacute distinction, has become habitual, and the inevitable result must be, an increase of disease and of general debility. A recent irritation, set up in any part or organ, of a person in possession of ordinary vitality, will speedily produce a general disturbance, more or less violent, which will

be expressed by the ordinary appearances of pyrexia. But a chronic local affection, to the irritation of which the system has become accustomed, often progresses without exciting a general sympathy, and stimulants might in many instances be administered to an indefinate extent, without rousing the system sufficiently to exhibit a general fever.

With these remarks on the subject of debility properly so called, we return to our former position, that indirect debility requires to be treated with evacuation: and we here repeat, that it is necessary to reduce the powers of the system, down to the condition which is direct debility. The lassitude and prostration of strength which attends the onset of fever, is the effect of a plethora. This fullness, under the pressure kept up by the impulse of the heart, supplied with the whole volume of sensorial power, subjects the pulmonary artery and indeed the whole arterial system, to an overwhelming injection; so that the heart itself is enthralled by the unyielding fullness of the two great arterial trunks, which is inevitably followed by a sense of indirect debility, of fullness in the chest, whilst the thorax seems begirt with an unyielding bandage, or pressed down with an insupportable weight, producing a sense of stifling for want of breath. Such a state of things, if not relieved by copious blood-letting and other suitable evacuation, would soon terminate in death. The evacuations must be continued until the quantity of circulating fluids is completely under the control of the propelling power, and of the returning circulation of the system. If no lesion be produced by the injection before the circulation is relieved by such a sufficient depletion, the case will not be followed by pyrexia. But if the vessels shall have been injured by the distension, it then becomes necessary to evacuate not only to the degree just named, but to extend it so far, as to induce the state of things which is direct debility, and by appropriate repetition, to secure a continuance of that state, until the system shall have had the necessary time

to repair the injury. The irritation which follows in such cases, and which provokes and maintains pyrexia, is consequent on a certain extent of capillary congestion, the removal of which, depends on the process of absorption; which process will not be performed advantageously, until the system is placed in a condition of direct debility.

The same doctrines ought to be admitted in our therapeutics in regard of chronic affections, in which we almost universally have to encounter more or less general debility. In these cases, the diseased organ or structure is considered as being in a state of congestion, or at least in a state of irritation; and although the strength of the patient in the aggregate may be below par in view of any given standard, yet very often some depletion is necessary, in order to place the absorbents in a favorable condition.

Take a few instances by way of elucidation. The debility which ushers in and attends on a case of pulmonitis, is always the effect of embarrassed circulation. In gastritis, &c. the great prostration which attends, is partly the effect of fullness, but probably more the result of the inconvenience which the nerves of the stomach and intestines suffer, when those organs are brought into a state of inflammation. Invalids are rarely if ever attacked, after the manner of those who are overwhelmed with plethora. Such persons if predisposed to organic affections, resist them longer; and in a manner peculiar to their condition retain their usual strength to a later period, than those who are more robust. This last is an important fact. For if we should conclude that weakly persons must be treated with cordials, when they require depletion, the mistake will as certainly be fatal to them, as to those who are more robust. It is equally absurd to fortify such invalids against a sickly season, by giving them tonics, bitters, &c. or to brace up those who have narrow chests, or peculiar susceptibility of inconvenience from change of temperature, by similar means. The same may be said of those,

who advise stomachics and bitters, because the stomach is affected with symptoms of dyspepsia. Such prescriptions can do no good. On the contrary, they may establish the organic mischief which is already beginning, insidiously, to undermine the lives of the patients. From the whole it will appear, that much care is required to ascertain, in every case of debility, whether it must be placed to the account of the direct or indirect distinction. Also that experience alone can prepare us to adjust the practice, to the one or the other, and still more to perceive the occasions calling for the requisite modifications in treating the cases which need an alternation of cordial and evacuant remedies.

A knowledge of the trades or professions of our patients, is often highly useful in conducting our pathological inquiries. And when it can be ascertained, that the disease under consideration has been produced by the profession, and especially when known to be peculiar to it, it is often necessary to advise a change of business. If called to a man affected with a violent and unyielding cholic, with great and obstinate costiveness and hardness of the abdomen, it would be important to ascertain, whether he is a workman exposed to the effluvia of lead, or one who habitually handles substances of which lead is a component part. This kind of inquiry however more properly appertains to a treatise on the causes of diseases and perhaps we may find occasion to notice it again under that head.

The influence of habit is no less extensive than it is powerful in modifying the condition of the animal economy. It is therefore always important, that the physician should be acquainted with it. If any particular habit shall become inveterate, health cannot be supported if it be laid aside too abruptly. Those habits to which we here refer, are such as relate to clothing, drink and diet. A man accustomed to eat largely as his daily habit, cannot always suddenly become abstemious, without inconvenience and danger. Those who

are accustomed to take ardent spirits, must not be deprived too suddenly of all stimulating drinks. We must gradually diminish the quantity and strength of the customary article, or we must devise a substitute. Facts have demonstrated, that inflammatory diseases are less frequently mortal among drunkards, if we allow them a small quantity of weak wine, and as the lives of such men are very frequently injured by long continued excesses, a strict attention should be paid to this circumstance in order to afford them every possible advantage.

Habits of dress require a similar attention. Some people accustom themselves to wear much clothing; others little: some as to the whole body; others as to certain parts of the body, as the head, breast, feet, &c. These peculiarities, apparently of little importance, should not escape our notice. Ordinarily, some real or imaginary cause leads to the habit, which ought to be investigated. By habit, the skin, or stomach, or schneiderian membrane, becomes less sensible of the stimulant, or irritating effect of any agent which may be be applied daily to them. If we wish therefore, to keep up the effect, the application must be gradually made more active. Tobacco chewers, and snuffers, and dram-drinkers, all learn this instinctively, and sometimes, when any particular article loses its effect, it is found useful to discontinue it for a season, until the nerves which have beceme benumbed shall have had time to recover their ordinary sensibility. It is known that the most poisonous substances become apparently inoffensive if used habitually, with gradual augmentation of the quantity taken. Yet this fact does not justify an incessant use of very active medicines. For, although their effects may be imperceptible, they may be deleterious, and eventually end in destruction. The skillful physician guards against the evil in both respects. He gradually increases or diminishes, so as to produce the intended effect, or withholds

it altogether, if it be found to produce irritation. This rule is one of the greatest importance.

The particular fancies or antipathies of our patients, often furnish us useful instruction. Some persons cannot take a particular article of food or drink. We ought to be informed, so as not to advise either. There are some, who are subjected to a very inconvenient degree of sickness on taking an emetic, and yet cannot be made to vomit. If an emetic is deemed particularly necessary, in such a case, we ought not to use any article known to the patient as an emetic. An infusion of ipecacuanha, or warm water alone, should be administered in large quantities, until the effect is produced. It would be tedious to enumerate all the circumstances of this kind, requiring attention. There are but few persons who have not some antipathy or partiality for some particular alimentary or medical substance; and it is always important that the physician should acquaint himself with it. We have often known serious inconvenience to occur from inattention to this rule.

Particular appetites produced by sickness too, claim the attention of the therapeutist. These appetites frequently call for very dangerous substances, and we must guard against their indulgence. Instinct often leads a suffering man to assume a convenient position of his body, or to make use of a a suitable beverage. There is some difficulty in deciding when it is proper to obey these calls of nature, and when to refuse them. They may be the result of morbid sensation, and of course are symptoms of the existing disease. If it be known that a healthful condition has not been restored to the viscera, that is, if the disease is still raging, appetites for food or stimulating drinks, ought always to be considered as being morbid, and they cannot be satisfied without danger. The prudent physician will not hastily oppose every such expression of nature's demands. Patients sick with fever, and possibly too long deprived of suitable drink, not unfrequently feel a

longing desire to be refreshed with some kind of acidulated beverage. With suitable precaution, they ought always to be indulged. In too many instances, patients in small pox have been smothered under an unreasonable weight of covering, shut up in a close room, and drenched with saffron tea, at the same time that nature clamored loudly for light bedclothes, fresh air, and demulcent drinks. Thousands of the fair sex, in circumstances the most interesting to humanity, have been subjected to similar treatment. When instinct, as a faithful monitor in each of these cases, would certainly have directed a proper treatment, had it not been opposed by ignorant officiousness. It is the imperious duty of the therapeutist, to consider the state of his patient, and the known effect of the article or substance which is asked for, by him or his friends. If it promise to be useful, the patient ought by all means to be indulged. If, however, the article proposed be unsafe, then with firmness it must be withholden, but it must be done with tenderness. In a condescending and persuasive manner, the physician must endeavor to convince him that it would be pernicious to indulge. And with a view of appeasing the feelings of the patient, he ought to be prepared to furnish some substitute, that may be safely used. Instances occur however, where it turns out that the most skillful may err, and the forbidden article is taken, not only without injury, but obviously with the most decided benefit. In such an instance, address is required to escape censure. Ordinarily, the better and safer plan is at once to acknowledge the error. Then as opportunity serves, take occasion to satisfy those concerned, that the mistake grew out of too much solicitude for the safety of the patient.

CHAPTER VII.

THE CAUSES OF DISEASE.

One of the most important inquiries of the physician has respect to the cause of disease. In obscure cases, the want of a distinct expression of the symptoms, or the wide extension, or multifarious diversity of the phenomena which present themselves, makes it very difficult to ascertain the seat, and, of course, the true character of many affections. To discover its true pathology in cases of this sort, requires a great deal of sagacity. To interrogate the patient, or those about him in an effectual and workmanlike manner, so as to make the investigation assume an aspect sufficiently dignified, and to inspire a proper degree of confidence, patiently to hear the details with their appendages, however unmeaning; to collect such auxiliary information as may be obtained from such materials; and then, by the more certain employment and exercise of sight and touch, to secure an intelligible and satisfactory view of the case—this is a task indeed. Experience alone can teach how difficult it is to obtain the truth from patients, either as it relates to the causes of their sicknesses, or the symptoms by which they were ushered in. In making these remarks, we do not mean to confine them to those complicated or hidden circumstances which require scrutinous investigation. We include the most simple facts and appearances, such as it would seem, could not escape the notice of the patient.

To judge from the treatises which have been written and published for the use of medical students, they might be led

to suppose, that there is nothing easier than to retrace the circumstances which mark the formation of disease. It is a fact nevertheless, that no investigation can be surrounded with more obscurity, or be more likely to lead to erroneous conclusions. Men are strongly inclined to disguise the true origin of their complaints, and present circumstances and symptoms which have no relation to the case in hand.

After having ascertained the seat of the disease, we have to inquire for the cause which produced it. For instance, disease produced by working in lead, by using tobacco, or manufacturing it, or by following sedentary avocations, &c. If well acquainted with anatomy and physiology, we shall always be prepared to form opinions, satisfactorily correct. Guided by these, we are prepared to overlook those occult and hypothetical causes, which took the attention of physicians in former times, and investigate the state of any viscus which is the seat of disease. Irritation, produced by whatever cause, must be corrected. In any case of enteritis produced by worms, it may sometimes be necessary to reduce the inflammatory condition of the intestines, before we have recourse to anthelmintics. So also in most cases of compound fracture, it will be necessary to leave the reduction incomplete, until the inflammation subsides, which may require several days, because the unavoidable disturbance of the fractured parts in operating on the limb, would produce a greater mischief. In treating a case of opthalmia, the condition of the general system is first to be regarded; local applications are after considerations.

The kind of acute attention which we recommend, will be well exemplified by a case which has been reported by a distinguished French physician. A female was supposed to be indisposed with a disease of the chest. She had a tormenting cough; a very distressing sense of suffocation frequently recurred; to these were added a continual head-ache; dizziness; a full, hard, and slightly accelerated pulse. In conse-

quence of a sudden surprise, catamenial evacuations had ceased for ten months. A copious blood-letting produced a cessation of the painful affection of the head. With a little attention the menstrual discharge was re-established; but the cough and distressing symptoms of the chest continued. Further means were used for ten or fifteen days, but without success. At length she was observed by her physician, to perform that very remarkable motion which accompanies painful deglutition, and to perform it frequently. Her fauces were then for the first time examined. There was a slight irritation discoverable in the pharynx and tonsils, the palate was elongated and filiform, and descended along the root of the tongue, very near to the epiglottis. This was the true cause of the cough. The exuberant appendage of the pallate was taken off, and all the symptoms disappeared. Circumstances similar to these are not uncommon; and the superiority of modern anatomy will enable us, generally to detect them in a shorter time than even the acute Frenchman required to make this discovery.

On visiting the sick room, after decent but short salutation, the first duty of the physician is to examine the condition of the patient, and ascertain which of the organs is injured, in a way calculated to exhibit the phenomena under his observation. His researches into the circumstances pertaining to any disease, his discoveries in regard of any derangement in the principal functions, all his investigations intended to ascertain the diagnostics of different morbid affections, have for their object and their end, a proper knowledge of the parts primarily affected by the disease. Having obtained a suitable acquaintance with the hurtful agent, which is the cause, and the manner in which it acts in the production of disease; then with a knowledge of the organ or organs which are affected, the physician is prepared to conceive justly of the train of injuries which may have been sustained, and understand the phenomena which are from

time to time developed, to institute an appropriate curative intention, and employ the medicament which will be most effectual.

Without ascertaining the true seat of the disease, and the condition of the organs which are concerned, there are many diseases which cannot be understood in a manner calculated to insure a safe practice. There are affections of the viscera, which involve the nerves in such a degree as to produce convulsions. Sometimes worms produce the same appearances. Severe convulsions frequently occur on the commencement of a paroxysm of intermittent fever. A proper knowledge of the causes and seats of diseases, is without question the true basis of correct pathology and successful therapeutics.

It is necessary to know the organ which is the seat of disease, in order to select the most suitable remedy. In cases of inflammation of the lungs, we depend chiefly on blood-letting. In hepatitis, after the necessary blood-letting, we rely more emphatically on cathartic agents. In enteritis more bleeding is necessary, according to the apparent strength of the pulse, than in most other diseases, and absolute abstinence should be considered more rigorously indispensable in inflammatory affections of the alimentary canal, than in almost any other instance of inflammatory condition, except in a case of phrenitis. Digitalis, which is so useful in regulating the action of the blood-vessels in some instances of capillary congestions of the vessels of the thorax, is of no value, in fact it does injury in an ordinary inflammation of the lungs. Cantharides are hurtful to those whose bladder is in an irritated state, but greatly useful in cases of debility of that organ.

We should be careful in the study of pathology, to keep our knowledge of symptoms constantly associated with the organs to which they are allied. As articulated sounds are altogether unmeaning, except they are the known expressions

of certain ideas, so symptoms are of no value except they indicate pain, or some other affection of a known organ. No solid objection can be raised against an effort to arrive at this kind of knowledge, on account of the fact that post mortem appearances give information only as to the state of things which occurred at the last hour. This difficulty might have more weight, if death never could take place until after the organs had run through all the changes which are implied in their total disorganization. But this is not the case. Inflammation can destroy life, sometimes in a few hours, often in a few days; and yet, sometimes chronic affections ending in death, may run on for months, and even years. Observation has in fact taught us, how long time, under given circumstances, is necessary for the formation of pus, for the thickening of membranes, and other disorganizations. With practice and attention, probable estimates can be made, judging by the violence of the symptoms and the time and circumstances of the case, what the actual state of the diseased parts may have been. We cannot fail to perceive how pathological anatomy in aid of scientific physiology, may contribute to the improvement of medical science, and of course, how important it is, that we should carefully improve every opportunity offered us for extending our researches in this way.

Independently of all other considerations, whether they may have respect to the disease in question, or to the patient, the intensity of a pathological affection frequently requires very remarkable modifications in the curative measures which are to be adopted. In a violently inflammatory disease, we must have recourse to blood-letting, and this must be repeated, sometimes frequently and in quick succession. The most rigid abstinence from food and from stimulating drinks, must be prescribed, and in a word the practice must be as decisive as the disease is violent. Any temporizing or half-way measures might be fatal. The time when the cure

ought to have been accomplished will have gone by, and never can be recalled. But when the disease is mild, we use means of less power, take more time, and confide more certainly to the recuperative powers of nature. Moderate evacuations, rest, and plentiful dilutions, in such cases may be safely trusted. To judge with certainty and propriety of the true grade of the disease, the power of the agent which shall be found to accord with the strength of the patient, and of course to do all that ought to be done, and no more; this is the consummation of medical skill.

It was once deemed essential to good practice to regard the critical days—third, seventh, ninth, eleventh, fourteenth, seventeenth, twentieth. On each of these days, it was thought necessary to make especial effort to assist the powers of nature to bring about a crisis. All this is now nearly laid aside. Regard is had to the duration of the disease, but this only with a view to keep a proper estimate of the patient's strength, and to judge of the obstinacy of the disease, with which we are contending. In the commencement of enteritis, we use a kind of practice which would be altogether destructive after the patient shall have been prostrated by a long continuance of the disease. When an abscess is threatened we use one kind of treatment in the commencement, (I mean whilst inflammation prevails;) another after suppuration shall have been completed. And there are times and occasions in all cases of phlegmasiæ, which we ought to recognize and improve, in order to insure success in their treatment. In the commencement of inflammatory affections, it is always important to deplete with the degree of decision, necessary to guard against congestion; and very often in performing this, a disease, which, if left to nature's powers unaided, would probably continue twenty days, and perhaps destroy life, retires completely in consequence of the first day's treatment.

We would be understood to teach a doctrine the reverse of what was contemplated, when the critical days were estab-

lished. Physicians, then, looked for a day, which would invite particular attention to nature's movements, that they might be in readiness to help her to fetch her lingering step over the summit ridge of the disease, that she might have the opportunity of a comfortable walk down the slope of a lingering and uncertain convalescence. We insist on a bold and successful attempt to arrest the disease at once, and then leave to nature her well known work of taking care of herself in her ordinary way. The first day's treatment is all-important, and in many instances it will insure the life or death of the patient.

It is the practice of some, to try to perform something like this in the commencement of pulmonary catarrh, and in painful affections of the stomach and abdominal viscera, by quaffing down large doses of alcohol, ginger tea, and the like; and then covering themselves heavily in bed, expecting to correct the existing error by provoking an abundant sweat. Physicians may be considered in some degree to imitate this pernicious practice, when, without previous blood-letting, they administer tartarized antimony in the commencement of such affections. It is true, the shock produced by an emetic, when it chances to be followed by a general and equable excitement, may answer a very useful purpose. A copious perspiration or a free secretion from the kidneys, may correct the irritation and produce an artificial crisis. But any attempt in this way, will prove abortive, whenever there is considerable plethora or very strong arterial action. Indeed, it will make the case more morbid and more difficult to cure, when through failure in the first attempt, recourse shall be had to more appropriate measures. The patient will be subjected to dangers he needed not to have encountered. It may be proper to admit, that we may sometimes adopt a rational plan of treatment and go on to execute it with suitable decision, and after all, fail to effect the changes which we intend. Having been sufficiently circumspect in adopting our plan, there is

no alternative but to reiterate the effort again and again, taking care, however, to accommodate the means to the incessantly decreasing strength of the patient. If we commence with blood-letting, after a certain number of repetitions, blood-letting can no longer be employed, and reliance must be placed on milder remedies, such as under existing circumstances may have a known tendency to remove the remaining irritation. It is proper to remember, also, that a disease which is inflammatory in its character, does not change its nature nor cease to require the employment of therapeutic means, proper for correcting irritation, although it may be protracted into a chronic form. In the meantime, however, the necessary modifications must be made in view of the tissue or organ which is the seat of it, and of the length of time, through which it may have been extended.

We reject as absurd, any routine or system of set practice, such as would make it necessary to administer an emetic in the commencement of all bilious or catarrhal affections; and also such as would make it equally imperious in all cases of debility, to administer tonics and stimulants. Such treatment must be conducted without regard to the nature, seat, and consequence of disease. In either case, much injury is to be feared, and the good which is sometimes apparently done by it, is too uncertain to justify the practice. By improper attempts to cure fever of serious character, without blood-letting and other suitable depletion, the cases so ill treated, become protracted, exhibiting fœtid excretions, foul and black tongue, accompanied by a general disposition to that form of fever which in former days was called putrid. In the hands of a workman we seldom meet with such cases. Furious delirium, hydrophobia, spasm, and convulsions, which so frequently occur under bad management, are commonly avoided by a treatment which is really skillful; and true skill, we hope to show in the proper place, will not fail to employ what has been called the antiphlogistic treatment, to a greater

or less extent, in almost every case. By this rational method, a greater number of cases will be cured, and even when cures cannot be effected, while life lasts, the symptoms will be moderate; even death is stripped of those formidable appearances which never fail to attend, when important viscera are still gorged with blood, or their blood-vessels are ruined by fatal congestions.

In addition to all the foregoing considerations, we must also have respect to the influence of climate. Every man shows some sign, which is the effect of the climate which gave him birth. His physical organization, his habits of eating or drinking, even his moral character and degree of sensibility, are all more or less modified by the country in which he has long resided. The philosopher, moralist and physician, all read Hippocrates with equal interest, where he describes the characters of the different nations of people known at the time when he wrote. Such is the excellence of his account of them, that the illustrious author of the spirit of laws (Montesquieu) could scarcely make any useful addition to it. Time has not materially changed the powerful effect of the laws of climate. In Holland, which is a cold and damp plain, the skin often chilled, performs its functions imperfectly; the lungs from that cause are subjected to an unnatural exertion in the performance of their functions. In our low countries and in flat marshy regions generally, persons who can survive, acquire the physical power to live with less blood in their skins. The consequence is, chronic irritation and ultimate disorganization of the lungs, the prelude to phthisis pulmonalis. Through the torpor of the skin, the cellular substance and ultimately the whole system of lymphatics, becomes affected, paleness, bloating, dyspepsia and dropsy, are likely to follow in their train, to sweep away those who may escape pulmonic affections.

How great the contrast between these people and those who inhabit the equatorial zones. Here the tissues present

a texture corresponding to our ideas of most perfect symmetry, the nervous system susceptible of every impression, even to excess. The muscular system is less vigorous and a prevailing inclination to voluptuousness distinguish the inhabitants of Asia. The abundant fertility of the soil renders it easy to procure the means of living, and the heat of the climate invites to indolence, so that he is almost constrained to prefer a careless and sedentary life, and suffer his bodily vigor to sink into effeminate weakness. The habitual stimulus of the sun's rays, maintains an equable excitement, and in a very peculiar manner promotes a healthful condition of the digestive organs. A short life of pleasure, is of course, the lot of this people. Contemplate such a people in the possession of riches and repose, surrounded with pleasures, and you will readily perceive how the inhabitants of a northern climate, poor, rough and inured to hardships, were always able to make them an easy prey. And you will understand how the conquerors in turn, became as effeminate and voluptuous as those whom they had vanquished. Hardihood, with little nervous irritability, their sympathies of course not easily enlisted, their organs firm and well balanced performing with facility all their proper functions, an ability to endure fatigue and all the vicissitudes of the weather, wet or dry, hot or cold, such are the distinguishing traits of the inhabitants of northern climates. The face of a country and the means which it affords for the support of its inhabitants, have a weighty influence over their physical and moral condition and character. In mountainous countries, of whatever latitude, where the people are chiefly dependent on the chase and hard labor for their support, we find a strong, vigorous and unconquerable race, always jealous of their liberties and ready to contend for or defend them. Whilst the inhabitants of fertile regions, where every necessary of life is furnished in abundance, almost without care, are tame, indolent and easily conquered. Daily labor performed from inevitable

necessity, can do more than any other thing for the attainment of a sound organic structure of the system and the establishment of a vigorous constitution. Indolence and ease, of course, as certainly produce effeminacy.

In view of these considerations, the physician has two important points to guard. The first is, to treat the natives of any country, according to their various temperaments and contingencies. The other is, to be vigilant to ascertain the effect the climate has on strangers, and its various effects on such as come from different regions. A deficiency in this kind of observation, has often led to the destruction of conquering armies, in different ages of the world.

The inhabitants of warm climates, when they pass into damp and cold regions, ought to increase the warmth and quantity of their ordinary clothing, and to be careful to insure a suitable degree of warmth to the system every night by using warm and gently stimulating drinks, &c. Their diet should be light in quantity, but consist of substantial materials, indulging moderately in the use of wine or very dilute alcoholic beverages.

When the inhabitants of higher latitudes pass into the hot climates of southern regions, it is necessary for them to use vegetable diet chiefly, and flesh very sparingly. And what may seem strange, at first view, their night dresses ought to be warmer than they are accustomed to wear at home. They too, should use a suitable hot beverage on retiring to bed, and regard the utmost temperance in every thing.

Persons necessarily going into marshy countries, where bilious and intermittent fevers abound, or where yellow fever, cholera, and dysentery, commit their ravages on the inhabitants, should be careful, in all the above named particulars, and at the same time, avoid those districts where the miasm is known to abound. Every kind of excess or intemperance ought to be avoided, as if they were infallibly sure to destroy their unfortunate victims.

There are other circumstances in relation to climate, which must be regarded in prescribing medicines. To the vigorous inhabitants of northern latitudes, who have a fast hold on life, we may administer our maximum doses, of whatever article it may be proper to employ; such as copious and decisive blood-letting, and bold cathartics. Those of such as have been accustomed to the use of ardent spirits, or very hearty meals, must not be subjected to too much abstemiousness, and if stimulant means are required, they must be dispensed with a liberal hand.

Among the natives of equatorial regions, strict diet, demulcent drinks and pleasant palliatives, in aid of minimum doses of appropriate medicines, will be all-sufficient. It is desirable that a more extended investigation should be made, and more careful observation encouraged, in order to ascertain what particular organs are most liable to suffer injury from the known different climates, and what the kind of modification which such particular organs assume, under the influence of particular climates. The result of such a course of inquiries, if happily and successfully executed, might be properly enough denominated medical geography.

We will conclude with some miscellaneous remarks, such as we could not conveniently introduce under any of the foregoing distinctions.

Attention must be paid to the state of the patient's mind. Sometimes there will be occasion for the greatest skill in religious and moral concerns, in order to restore the necessary tranquility of the patient, tormented with unnecessary fears. Sometimes, on the contrary, we meet with such unconquerable antipathy to the use of medicine, that it becomes indispensably necessary to make the patient understand, that the dangers of the case are such, that not only a few doses, but perseverance in the use of medicine will be necessary to prevent threatened dissolution. Much good sense is necessary for the proper performance of either of these duties.

We must also have regard to the effect and the demands of the passing seasons. A physician of acute observation is always prepared to meet the variations produced in the types of the different forms of fever, which occur as the seasons roll round; so that he may be sufficiently on the alert, not to be taken by surprise. Besides, the kinds of drinks, and the various attentions which are requisite, are also modified by the seasons. During the heat of summer, acidulated and cold drinks, affusion, sponging, wiping, &c. are particularly comfortable and useful to the patient. In most instances, cleanliness and ventilation in the sick room, the speedy retirement of the excrements, in a word, the physician ought to afford evidence, that he suffers nothing to pass unnoticed, which can at all affect the comfort or the safety of his patient. It is greatly consoling to the sick, to see all becoming solicitude for their safety constantly evinced by their physician. It increases confidence and contributes not a little to rocovery.

The young physician will take care to read the various treatises on the practice of medicine as common place; remembering that not one, nor all of them together, can give an adequate description of the true state of any patient, or direct the therapeutics by which its management should be conducted. It is his province and his duty, to investigate his own cases like a workman, taking into view the sex, age, degree of strength, the manner of life, and the occupation of each. He must ascertain the seat of the disease; the degree of violence which marks its progress; the time it has existed, and circumstances by which the patient is surrounded; that is, the character and ability of the nurse, and the supplies which can be furnished for the sick room. After all these things shall have been duly examined and considered, the therapeutic indication and the details of the practice which are to follow, may be adopted in a workmanlike manner.

PART III.

MATERIA MEDICA.

PART III.

CHAPTER I.

INTRODUCTORY TO MATERIA MEDICA.

Any substance which possesses the power of producing a remarkable change in the general action of the system of organs which constitute the human body, or in any one of those organs, which in certain cases tends to correct a disordered state of the functions, and restore their regular condition, may be considered a medical agent. We give the appellation of medicaments, more emphatically to those well known and tried articles, which having received an established character, have been modified or reduced to a fixed and settled form, and are now presented in a uniform shape, so as to render them most conveniently and extensively useful. The idea of a remedy necessarily implies some disease which the remedy is supposed to cure. All remedies are not properly medicaments, as many remedial articles are useful only as they may appertain to some Hygiene prescription, as others to certain surgical operations. But all medicaments are to be considered remedies, since we employ them exclusively with intention to cure disease. Aliments, medicaments and poisons, are not separated by any insuperable bounds. The state or condition of a patient may be such, that the most innocent and salutary aliments may become fatal poisons; we all

know that the most violent poisons can be employed as the most valuable medicaments. And the old adage is true, that what is an aliment to one man, to another is a poison. Nearly all the substances in nature's wide field, may be made useful to the therapeutist. It is the business of the physician to select those whose efficiency has been established by the experience of the profession, regardless of its natural classification, whether in common acceptation it be an aliment, a medicament or a poison; to a proper extent following the example of the wise ancients, who confined themselves to the use of substances which were well known, and to the most simple preparations then in use; when abstinence from food, vegetable decoctions, blood-letting, &c. were the items which composed their materia medica. But they became tired of this commendable simplicity, and combinations of substances the most active or fantastic, or even disgusting, in endless faragos, were made to encumber the pharmacopœia, until quackery, credulity, ignorance, and that universal mania, a taste for the marvellous, all concurred to hatch, multiply and scatter over the world, numbers of remedies, recipes, and secrets. Such was the wretched state of things for centuries, and the materia medica continued to wear this appalling aspect till about a century ago, when all at once the profession laudably set about a reform. The most conspicuous example perhaps, was set by the great Sydenham of England, who commanded admiration by his successful manner of treating diseases with blood-letting, antimony and opium, almost without other medicines.

From that time to the present, this department has been gradually cleared more and more of the useless trash with which it was disgraced, until it may be said in truth that the reformation has been immense. Yet after all, articles are retained which ought likewise to be discharged. By retaining in our materia medica, substances, whose effects are equivocal, we inevitably make our therapeutics uncertain.

But if we conform ourselves to the use of real medicaments, and use them judiciously, we shall continue to improve our own judgment and contribute effectually to the advancement of our science. If in this regular and commendable course of procedure, we can make accessions to the catalogue of real medicaments, it will be a source of true complacency to him who may discover a valuable improvement, and of gratitude to the profession and to the world.

In administering our medicines, our attention should be directed, first, to the effect produced on the stomach, or on any other part of the body, to which its application is made. Secondly, to its effect on the whole vascular system, and on any particular organ. In the third place, to the condition in which it leaves the system, after its agency shall have ceased. And lastly, to the ultimate effect which it may have produced in regard of the course and termination of the disease, for the cure of which it may have been prescribed.

We shall not attempt to settle the question, whether medicaments produce their final effects, by the peculiar impression made first on the nerves of the stomach, and by the laws of association on the whole nervous system, or by coming into contact with a greater number of ramifications of the nervous system by means of absorption. We believe both to be true. But the action of the medicaments cannot be explained by any hypothesis predicated on chemical combination. The laws of life and animal assimilation, are incompatible with any such opinion. Their action cannot depend on any mechanical power, or impulse, made by them on living organs, nor by a tendency of the particles which enter into their composition, to penetrate the tissues, or the parenchymatous substances which pertain to the viscera, and by combining, or uniting, with the animal substance, effect the changes which they produce. All we can know on this subject is, that certain phenomena are produced by the use of certain agents. That these phenomena depend on the pecu-

liarity of the impression on the part of the agent, and on the manner of feeling and the consequent motion produced by the impression on the part of the body which is the subject of the application. And although any particular agency may invariably produce a similar effect, however often it may be repeated, still the phenomena will vary according to the degree of susceptibility or irritability of the system, or of the particular organ which more immediately comes under its influence. This is a fact which should never be forgotten. By way of example; two drachms of the sulphate of magnesia, being administered to a healthy adult, would, ordinarily, produce a very inconsiderable effect, yet this small portion, given to a person with an irritable state of the intestines, might produce a most alarming state of hypercatharsis. The impression in either case is of the same nature, but in the degree and extent of the cathartic effect, there is a very great difference; and this is owing to a difference in the state of the system, in the two cases.

An epispastic or rubefacient application of limited extent, applied to the surface, or an appropriate lotion applied to the eye, or to the urethra, ordinarily produces effects which are limited to the surface to which the application is made; but this is true only when the system is in a healthy state, or when the disease is such as readily admits of retirement. A weak solution of sulphate of zinc applied to the conjunctiva in a healthy state, will not produce an action implying any permanent inconvenience. But stimulate the eye when it is already irritated, and the local irritation will be increased, producing a general state of pyrexia. The same may be said in regard to the urethra. So also, agents given internally. A moderate dose of quinine administered to a man in health, will only slightly raise the pulse, and when the stimulant effect retires, little or no inconvenience is found to remain. The same dose reiterated a few times, in a case of inflammatory fever, unless the patient shall have been first

prepared by depletion, will be followed by speedy inconvenience and very often by an increase of fever, which is afterwards corrected with difficulty.

Different remedies are applied in practice to the integuments, the conjunctiva, the schneiderian membrane, the ears, mouth, stomach, the rectum, and urethra. It should be remembered that an agent which may be safely and usefully applied to one of these particular portions of the external or internal surfaces, may be extremely offensive to another. Vinegar, for instance, is perfectly pleasant in the mouth, and may be received into the stomach almost without perception; yet if thrown into the eye, urethra, or rectum, it gives great inconvenience and in many instances would be followed by inflammation. Cantharides may be extensively and usefully applied to the cuticular surface, and the irritation and excoriation which they produce, accord with sound philosophical therapeutics. If applied internally, so as to produce a similar irritation, the consequence might be fatal. This is a discrimination, therefore, particularly worthy to be kept in recollection.

There can be no doubt of the fact, that medical substances are absorbed. Of course that they act primarily on the organ or part with which they first come into contact, principally the stomach; that the impression made on the nerves of the stomach, is sympathetically conveyed to the nervous system generally, or to some particular tissue specially, or perhaps to both. And after sufficient time is allowed, certain parts, at least of some agents, are taken into the circulation by absorption, and thus coming into immediate contact with a greater portion of the nervous system, serve either to increase the effect, or extend it through a longer period of time.

According to these facts, those agents which are known by experience to act on particular organs, or to increase certain functional operations, may be effectual, either directly

or sympathetically; but we are inclined to the opinion, that we are chiefly indebted to the sympathetic relations which obtain among all the organs and functions of the body uniting and constituting them one great whole, for the most interesting phenomena which claim our attention, in regard of the modus operandi of the best medicaments known to the materia medica. The nerves of the stomach receive the impression of the agent employed, through them it is conveyed to the sensorium, when the whole system becomes generally interested, and such organs specially so, whose structures and functions are more particularly calculated to be most excited by the impression. Hence the sympathetic effects, that is, the supposed specific effect of medicaments are ordinarily proportioned to the intensity of the first impression. Hence also the sympathetic affection in most instances, commences, increases and terminates, with the corresponding phenomena, which give notice of the general impression.

We introduce into the stomach, wine, opium, camphor, oxymel of squill, kermes mineral, digitatis, &c., the ultimate consequence is, that one excites general action only, another induces sleep, another excites diaphoresis, another increases the secretion of urine, and another diminishes the power of the heart. The first impression is made on the stomach by each. The ultimate result differs in each, and experience alone can make us acquainted with the specific differences which mark their modus operandi. The same diversity of appearances attends when any of these agents are properly introduced into a vein. We make our applications chiefly, however, to the stomach, to the lower intestines, and to the skin. But these surfaces may vary in respect of their susceptibility of the impressions which may be intended to be made, either on account of the state of the nerves generally, or of those of the stomach, &c. particularly. The whole system may be so prostrated, that the medicaments will pro-

duce no sensible effect; or the tone and sensibility of the stomach may be so reduced, that an ordinary portion of the most powerful agent seems to be quite inert. Let the energies of any person be exhausted by great fatigue, and he may take an unusual quantity of any appropriate stimulant, not only without injury, but with manifest advantage. If the pneumogastric nerve of a horse be divided, you may give him as much of the nux vomica as would serve to kill him, had not the nervous communication been first cut off. If the stomach be in an irritable state, those agents which ordinarily soothe and tranquilize, serve only to increase irritation.

When medicines are absorbed, it is not important to know whether the lymphatics or the veins are most concerned. The coloring matter of madder, the odoriferous principle of turpentine, camphor, alcohol, essence of lemons, &c. are found to pass into the blood, and are eliminated by the secretions. Then of course medicaments administered at any time will be more or less effectual, as the absorbent system is more or less ready to bear its part. But as to the various modes and degree of fitness or unfitness of the whole system of nerves, or of those of the stomach or of the absorbents, it remains yet unsettled. It is hoped that the zeal and industry of the profession, will not cease, until all that is necessary to be known, will have been ascertained and settled.

In tetanus, either the assimilating power of the stomach is so much increased as to change the nature of very large portions of opium and prevent its usual effect, or else the stomach and *prima viæ* are too insensible to feel, and the absorbents of those organs too inert to convey it into the circulation. Enormous quantities are administered without any discoverable effect. In the same disease, this article introduced into the veins, acts in the usual manner. It has been long known that if injected into the rectum, opium is more effectual for the correction of nervous irritation, than when

taken into the stomach. And in this view of the subject it is particularly worthy of remark, that any of the important medicaments which produce special effects as if by an elective action on some particular organ, produce the same effect if introduced into a vein, which they always do when taken into the stomach, or if applied by friction on the skin. So emetics, cathartics, narcotics and diuretics, will severally direct their effects upon the stomach, the intestines, the brain, and the kidneys. Dr. Hale made an experiment on his own person, with ol ricini. It was followed by an oily and nauseous taste in the mouth, pain in the intestines and with decided catharsis. Now if it could be ascertained, what articles most certainly admit of absorption, by what phenomena the physician is to judge of the effect, how to regulate, restrain or render more active, articles which may be safely used in this manner, it might become very important to the therapeutist. It would not only give a more extensive control over the maladies of the human family, but it would eventually contribute much towards a definite understanding of the modus operandi of medicines. Perhaps much additional information might be collected, if practitioners would make more frequent, extensive and careful application of remedies to the skin. It is admitted that the stomach and intestines promise a more ready and complete absorption of medicinal substances. But it is a fact that they possess elective and repellent powers also, and are protected by an exquisite sensibility. Besides, they are endowed with the power of assimilation which can modify, and to a considerable degree diminish, the power of any agent applied to them, so that the manner in which the system is primarily affected by them, must remain very uncertain. In making experiments on the skin there can be but little difficulty and almost no hazard to the patient. Experiments by venous injeetion must necessarily be difficult and always dangerous. But we shall have occa-

sion to say more on the subject of the skin in our subsequent chapters.

There are some important considerations which ought to be kept in recollection, which regard the condition of the body after having undergone the operation of certain important medicinal agents. An emetic, for instance, when it may have been most distinctly indicated, and carefully and properly administered, often leaves the stomach in a state of irritation, which acid or fermenting drinks do not fail to increase, and sometimes they produce very serious effects. Narcotic substances, administered in portions, but a little too large, frequently leave the system in a dull, stupid condition, which may readily become dangerous. These inconveniences should be foreseen and avoided. Blood-letting, at the same time that it reduces the arterial action temporarily, to a certain extent produces a converse effect on the nervous system, and if at all ill-timed will require an opposite treatment. If a person of nervous temperament be the subject of such treatment, and the error be not timely corrected, spasms and even convulsions may be induced. The application of the most emollient poultice, too long continued, might be followed by such a state of relaxation, as to require for its correction, the use of roboratives and tonics. It is important that we be prepared to anticipate the immediate and secondary effects of the various agents which we employ. A deficiency in this kind of information, might not only endanger the life of our patients, but must inevitably endanger the reputation of the profession.

CHAPTER II.

THERAPEUTIC POWER AND VALUE OF MEDICAMENTS.

After the foregoing prefatory remarks, we come now to the consideration of the therapeutic power and value of medicaments. It is presumed that we are already sufficiently prepared upon this subject to perceive, that no medicament possesses that kind of mysterious and indefinable property, which imagination assigns to a certain antidote or specific remedy. No well informed physician will believe that any chemical, vegetable, mineral, or animal substance, possesses a power, by which it can directly put to silence the morbid motions which constitute disease; restore to natural condition the morbid enlargement and indurations, which are consequent on many chronic affections; or change and restore to a healthful state, the great volume of sickly fluids, rendered morbid by a long continuance of a disease of some one or more of the important secretory organs. None but empyrics, or the dupes of quackery, believe there is any such medicine.

The most enlightened and skillful physicians are most ready to admit the uncertainty of the therapeutic effect of remedies. And it will be found that the most judicious are in the habit of employing the fewest number of articles, and those few in their simplest forms. When a practitioner of medicine shall have administered any one of the boasted medicaments and looked in vain for promised effect, until sick with disappointment; when a discreet judge of the seat and power of any disease, and of all the complications which it

may involve; and one who knows in how many instances, cases are presented which are altogether unmanageable; when any such capable physician, has for a long time, in reiterated instances, proved the inefficacy of supposed medicaments, his good opinion of such uncertain articles must diminish, and he will daily be engaged in lessening the catalogue of his materia medica, and in simplifying his practice.

It is now sufficiently understood, that any medicine makes its sensible impression on some important organ, generally exciting it to a more active performance of its particular function. And that the impression, although a proper one, may be nearly or altogether useless, by being too slight; or it may be satisfactorily effectual, by being sufficiently decisive. In the administration of remedial agents, the medical philosopher calculates on physiological effects to be produced, either locally or generally. There is nothing dark or mysterious in his calculations. He knows the structure of the human body, he is satisfied as to the diseased organ, he knows the nature and power of the disease; he knows moreover, what medicaments to employ. He foresees the necessity of certain changes in the condition of the diseased organ, and what agent is known by the profession, from experience, to accomplish the intended effect. His calculation is therefore always simple, and readily tested. And if at any time, he may meet with difficulty, it is because he is not informed of the seat or nature of the disease, or he is not acquainted with the kind of impression which is necessary for its removal, or with the medicament which is suited to make that impression; or else the disease is such as must fairly be considered incurable by any known remedy.

If we admit the existence of a specific remedy; of a medicament which possesses the power directly to destroy the disease for which it is the infallible antidote, we must admit, that it possesses *sui generis* a hidden principle, which lays hold on the organic structure of the part diseased, and

compels it to return to its natural state—an absurdity, a folly, which has no place in science. If each medicament had claim to a specific power, then none would be effectual, except only in the particular affection for which it is specifically appropriate. But it is now known, that in many instances, the same kind of disease, and in similar circumstances, is cured by agents of opposite powers. Fevers produced by marsh effluvia, are cured by depletion; they are also cured by the liberal use of the potent tonic agent, quinine. Moreover if medicaments act by means of specific virtues, then of course, they ought always to be in some degree appropriate, in the respective cases in which they are the reputed antidotes; that is, they ought infallibly to cure, or at least to diminish the violence of the disease. But how is the fact. Quinine which at one time corrects an intermittent fever, at other times increases the power of the disease, and instead of postponing, brings about a hurried anticipation of the paroxysm and renders every symptom more alarming. A tonic, which always ought to produce an increase of strength and comfort, if at all ill-timed, will greatly increase debility, and if persisted in, destroy the patient. A pectoral preparation, well-timed and appropriate, facilitates the discharge of the mucus, by improving the condition of the exhalents, and like a charm soothes and relieves the patient. Administer the same remedy in a cough accompanying considerable pyrexia, and it will not only fail to give relief, but will greatly aggravate every inconvenient symptom. Hence it appears, that antispasmodics, tonics, diaphoretics, diuretics, and even emetics and cathartics, are able to produce each their proper effect, then only, when they are made appropriate, by the judgment and skill of the experienced workman in the profession. A classification of medicines, therefore, under these and similar heads, without much precaution, is calculated very seriously to mislead the young physician; and indeed the same may be said of the whole volume of nosology. Tonics, febrifu-

ges, aperients, and the like, are deceitful appellations, and have often led the inattentive far astray. The same has been done by the association of a specific remedy, with the name of a disease. An intermittent or remittent bilious fever is announced, and the principal remedy is quinine. A syphilis is announced, and the remedy is mercury. But the discretions which we have had under our consideration, have taught us that, easy as this association of the name of the disease and its supposed appropriate remedy seems to be, it will require much skill and attention, to make a proper use of either of the articles, specified in the cases referred to.

The organs essential to life exhibit impressions of motion or action corresponding to the expressions made on them by the medicaments employed in view of affecting their condition, respectively. The motion or action thus artificially excited, will be either in concert with, or in opposition to the motions and actions produced or maintained by the injury or morbid condition of the organ concerned, which the artificial action of course is intended to diminish and remove. The excess of natural action is to be put down by extinguishing a portion of vitality, or removing some irritating agent, or wearing down the mobility by exciting and maintaining an action stronger than the natural action, till the irritated vessels shall have become sufficiently tired to take rest and return to order.

A sick stomach is often cured by vomiting, a diarrhœa by a cathartic; an intermittent fever by maintaining uniform excitement through the tonic power of quinine, and an erysipelas by the proper application of external heat. A sick stomach under other circumstances is relieved by the use of opium and carminative drinks, as clove tea, &c. A diarrhœa, under similar circumstances, is likewise arrested by appropriate doses of opium; by astringent and cordial drinks, and by injections. An intermittent fever by keeping the patient in bed, and excluding light, and sometimes by the exhibition

of a portion of spider's web. And erysipelas, in the form of shingles, will retire on the eighth day, under the application of dry meal or black cat's blood; that is, it will retire spontaneously. Apparently the same disease is removed by the use of stimulants of sufficient power, or by a copious blood-letting, the most opposite practice that could possibly be adopted.

Note by Dr. Snyder.—"Medicinal substances are those bodies which by due administration, are capable of producing certain changes in the condition of the living system, whereby its morbid actions may be entirely removed, or advantageously controlled." This definition excludes aliments. Medicines are relative agents: Sir Gilbert Blane, states, that "The virtues of medicines cannot be fairly assayed, nor beneficially ascertained by trying their effects on sound subjects; because that particular morbid condition does not exist which they may be exclusively calculated to remove. An instance occurs in tonics, which are felt in debility, but whose effects are not noticeable, or wholly inappreciable in a robust condition of the body.

The effect of a remedy may depend upon mechanical, chemical, or vital agencies. They may be absolute or relative; primary or secondary; local or general; direct or sympathetic; permanent or transient. Some purges are nearly absolute, as elaterium. Diuretics depend on a certain condition of the body, therefore are considered relative, &c.

CHAPTER III.

OF THE SURFACES TO WHICH MEDICAMENTS MAY BE APPLIED, AND THROUGH WHICH, IMPRESSIONS MAY BE MADE BY MEDICAL AGENTS.

Some intimations have been given respecting the surfaces to which the therapeutist may make the application of his medicaments. There are, however, no more than two upon which we can generally rely. The one is the skin, that is the whole cuticular surface of the body. The other is the mucous membrane, that is the inner surface of the stomach and lower intestines, the schneiderian membrane, the tongue, fauces, urethra, &c.

In making our selection of the surface on which we shall attempt to operate, it is necessary that we consider the effect we wish to produce, the state of the several organs or surfaces which are to be the subjects of our choice, and the probable duration of the treatment, which the case will require.

If the intention be to use an irritating agent, and which is to be continued a long time; as is frequently the case in the employment of mercurial remedies; when much stress is laid on the absorption of the article, and especially if the stomach and lower intestines are easily disturbed by its agency, we should prefer an application to the cuticular surface, or to those parts of the mucous membrane, which are less disposed to involve a serious effect on the peristaltic action of the bowels. This method is often employed in the cure of syphilis. So the muriate of gold is applied by friction to the tongue. In this way, the effect of the remedy is secured at the same time that the alimentary canal is protected. But

the stomach and intestines, by reason of their peculiar susceptibility of any intended impression, and of the great power of absorption with which they are endowed, present the surest channel for conveying into the system, any ordinary medicine; and therefore physicians generally, have their chief reliance on these, in their therapeutic operations. The great point is, to be prepared to make our application in a manner, which shall accord with the degree of vitality present, in every case. To be sufficiently decisive without extinguishing the powers on which our therapeutic intention is dependent for success—remembering, that if rightly and decisively administered, potent agents are truly medicaments; if with timidity, and in too small portions, they are no better than inert substances; and if in portions too strong, they are poisons.

When the stomach is too irritable to admit the use of some important article, the rectum presents a surface, which is capable of a very active absorption. It can be excited, too, in a manner to produce powerful revulsive motion, even tartarized antimony will in some instances produce its emetic effect, more agreeably when employed as an enema, than when taken into the stomach; especially so in cases of young children. In some of the hospitals of France and Great Britain, fumigations of mercury and other agents have been applied to the lungs, it is said not without benefit. It would seem probable, that this practice might be improved, and that the time will come, when vapors of suitable powers will be inhaled with certain benefit to the patient.

The mucous membrane of the vagina, or of the urethra, the eustachian tube, the inner surface of the ear, the conjunctiva of the eye, are scarcely ever subjected to the application of medical agents, except only in the instances when any one of them is treated for some disease of which it is itself the seat, and nearly all such cases belong to the department of surgery.

In speaking of medical applications to be made to the skin, we must call attention to the fact, that some are more effectual when applied to the reticular surface, when it has been stripped of the epidermis. The cellular and vascular exposure of wounds, present surfaces which perform very active absorption, and any action excited in them, is very speedily propagated and extended over the whole organic structure.* Vaccination acts in conformity with this law. Mercurial applications made in this way, in a short time produce salivation and cure syphilis. The same agent applied to chancres and buboes afford strong evidence in support of the fact. Arsenic applied to ulcers having been absorbed has produced death. Cantharides applied for the purpose of blistering, have irritated the neck of the bladder to serious inflammation. Messrs. Chiarenti, Alibert, Pinel, Dumeril, Brera and others, have multiplied experiments in this way, and through cutaneous friction, have produced the proper effect of cathartics and diuretics; also the tonic and febrifuge effect of quinine and other therapeutic agents. Messrs. Lambert and Leseiur, have in like manner introduced almost all the articles of importance which are known to be taken up by absorption. Substances employed in this way, have been denominated by the French physicians as emplastro-dermique. Such articles ought to admit of great concentration of power in a small compass. When known to be very irritating, they are incorporated with cerate or gelatin. If they have a tendency

* Dr. A. J. Wedderburn has reported in the New Orleans Medical and Surgical Journal, (January No. 1846,) several cases in which the sulphate of quinine applied freely in substance, to the surfaces of ill-conditioned and indolent ulcers produced the most speedy and salutary changes.

We have applied the sulphate of morphia to the abraded surface which had been previously blistered, for the correction of the most alarming and painful condition of the abdominal viscera, with the most decisive and beneficial effects. From one to three grains was sprinkled over a surface of from four to six inches square. The effect is the same whether we use the sulphate or acetate of morphia. The article in such cases should be ground up with a little loaf sugar and gum arabic.

to cicatrize or heal easily, they are united with epispastic pomatum. With the acetate of morphine, they have corrected the distressing watchfulness which often afflicts the sick, particularly nervous patients; eased the racking pains of patients in chronic rheumatism, and relieved or cured obstinate pulmonary catarrh. By the application of sulphate of quinine, intermittent fevers, tertians and quartans, have been cured, after having been long treated in vain with cinchona and quinine in the usual way. A very distressing neuralgia, accompanied with symptoms of hysteria, was cured with the greatest ease and expedition, by the external application of acetate of morphine mingled with assafœtida. A case of tetanus produced by the application of nux vomica to an excoriated blister, was instantly relieved by the acetate of morphine. This fact would justify a hope of our being able by this method, to cure tetanic affections. Musk, digitalis, chrystals of acetate of lead, applied to vesicated surfaces, have relieved diseases of the heart, pulmonary congestions, and affections partaking of the nature of asthma.

In quoting these instances noticed by modern French authors, it should be remembered, that in making the remedial application, an issue, or what is equivalent to an issue, is established at the outset, and as the treatment is to be continued a sufficient length of time for effecting recovery, it is not improbable that the sympathetic irritation may be entitled to a goodly share of the credit which is given to the quinine, acetate of morphia, musk, digitalis, &c.

We have no intention, however, to detract from the merits of this kind of practice. We hope it will be continued, and reiterated under the necessary observation, until it shall be satisfactorily understood, how far credit is to be given to absorption, and how far to irritation merely. The introduction of medicaments into the veins is out of the question, except for incorrigible mania, tetanus, &c.

Therapeutic agents probably make an impression which

has a tendency to change the condition of the tissues, as well as to modify the action of the organs. It is desirable to ascertain the changes which take place in both the solids and fluids of the system, when affected with disease. As yet, however, much remains to be done. When and in what manner medicaments produce changes in the constituent materials, which form lymph, or blood, is an inquiry of great difficulty. It is equally difficult to ascertain, how far the therapeutic effect may depend on such changes. The old doctrines, which proposed to render the blood thick or thin, or sweet or more acid, or alkalescent, are now all exploded, and modern science has not left us a substitute. The received opinion is, that medicines act on the living organs, after the manner of ordinary or natural stimuli. Under their influence vital actions return to their natural state, the constituent principles of the fluids are duly elaborated, the solids are refitted, so that the several tissues develop themselves and perform their functions with suitable activity; and the most we know with certainty is, that these changes are consequent on the impression made by therapeutic agents upon the living organs. And although particles of the medicinal substances which may have been employed, have been detected in the blood, bile, lymph, urine, or other recrementitious and excretory fluids; it affords no satisfactory evidence, that the good effect produced by the remedy, depended materially, if at all, upon this apparent combination of the medicine with those fluids. Such appearances are worthy of notice, however, and sufficient acumen and observation may one day turn them to account. There can be but little doubt entertained, that the agency of medicaments is felt by the tissues, whose condition can be usefully affected by any appropriate agent. The skin under the influence of proper remedies, can be made to take on its white, smooth and even surface, after it has been covered with pustules or scabs, or

thickened to an unnatural degree. The muscles after having been lank, languid and devoid of strength, become full, firm and strong, under the use of suitable medicines. Membranes which have been relaxed or rigid, are restored to their proper condition and to the performance of their regular functions; even bone, which has been softened by a disposition to scrofula and rachitis, has been made to recover its proper degree of firmness and solidity. Inflammation, congestion, or sanguineous engorgement, unnatural growth or enlargement of parts, all, are made to retire or at least to abate their progress, under the influence of well conducted medical treatment.

The therapeutist can effect an increase or abatement or a regulation of the functions. Digestion, absorption, secretion, circulation, respiration, sensorial energy, even nutrition, are all, more or less subject to his discretion. An increase of the functions may be produced directly in cases of debility, by the employment of appropriate cordials and stimulant means. But when they become languid by reason of too much fullness, which is the case in most instances of fever, the same object is to be accomplished by opposite means, in an indirect way—say, by depletion, and perhaps it may become necessary to call to our aid, the means which promote an increase of secretion. Functions when performed in a morbid way to excess, are made to abate also by similar applications of direct or indirect means, and their regulation in general, is accomplished by the employment of either stimulant or evacuant medicines, as the case may require. These remarks are intended to be considered in view of disease of recent date and of short standing; in almost all of which, it will be found on experience, that they are perfectly appropriate and include all that will claim attention in respect of the general treatment. But the functions are often put out of condition, by organic diseases of long standing, and in all

such cases, the employment of the means, just now mentioned, will be altogether unavailing, except so far only, as every one of them may at any time become a constituent part of a plan, instituted for the purpose of removing such organic injury.

Organic disease, if not removed on its first attack, and of course if permitted to assume a chronic form, has a constant tendency not only to alter the particular organ which is the immediate seat of it, but eventually to throw the whole system of organs into disarray. In such cases the physician will find it necessary to proceed with great circumspection and judgment; without which there can be no hope of success. He must be prepared to investigate, nay, as if to penetrate the condition of the organic structure, in order to ascertain where the original seat of the disease is, to know the progress with which it has entangled other organs, and determine upon which of those to commence his operations. Irritations must be diminished or diverted away from the points on which they have been habitually fixed; associations of motions or irritations must be dissolved, morbid determinations must be called back to the channels from which they may have wandered, the nutritive functions must be guarded and modified, and such general arrangements made, as may bid fairest to promote the accomplishment of the leading intention, which is kept in view. This part of our practice always requires time. The disease may have been months or years in establishing itself; it cannot be recovered in a day. Such cases will call into use all the medical science we can collect, and will give employment for our utmost ingenuity. We must devise suitable aliments, such as will support the patient without aggravating the disease, and we must preserve animation whilst in the use of articles inevitably more or less deleterious.

The ancients, on observing that diseases were in many ca-

ses complicated, with intention to meet them under all circumstances, introduced the use of compound medicines, so that, let the disease be howsoever occult, some one of the ingredients might, by chance, be its antidote. In avoiding this ridiculous error, we must be careful not to run into the opposite extreme. We may find it necessary to turn attention to more than one organ at once. A person laboring under the distress of a chronic hepatitis, may by some casualty be subjected to an inflammation of the lungs, to an attack of enteritis, or an inflammatory rheumatism. In any such instance of complication of disease, we attend first to the symptoms which are most painful or dangerous. Inflammation of the lungs, enteritis and inflammatory rheumatism, require blood-letting. But as the liver is diseased, it will be necessary to modify the practice with a suitable reference to the condition of that viscus. That is, more catharsis will be required, more time, and more careful attention to the convalescence, and after all other symptoms shall have retired, it will be particularly important to review the state of the viscus which was previously affected. Something like this should be the management in all cases of complicated affections.

It is now asserted by many physicians, that all medicaments are either stimulants or sedatives; acting generally, on particular organs, according to the principles above stated. Our experience has led us to believe, that all medicines, from whichever of the natural kingdoms selected, do act primarily as excitants, making their impression first on the part with which they come into contact, and extending an influence, which, according to the phenomena that follow, has served to distinguish their therapeutic characters and merits. And that most, if not all, might be used in such a way, as indirectly to act as sedatives. Of course we can come to no other conclusion but this, that there is no medicine which

is directly sedative, although opium judiciously administered when necessary, admits of being used with that intention, with speedy success.

At the same time that all medicines are really excitants, the experience of every day proves, that on the use of some particular articles, certain particular organs and tissues give evidence of their particular excitement, and that under suitable circumstances, the same results pretty uniformly follow their use; as if an impression were made analagous to that which attends upon the insertion of the vacine pus, or that of the variola, or that which follows the touch of the syphilitic matter, or the influence of the effluvia which is disengaged from the bodies of persons afflicted with variola or rubeola. So it appears that sulphur affects the skin of all who use it; antimonial pomatum, or cerate, produces an eruption which is similar in all cases in which it is applied. Digitalis is thought in all cases to reduce the action of the heart; narcotics produce nearly the same effects in all similar instances on the nervous system; nitrate of potash on the kidneys; iodine upon the lymphatics; and mercury upon the liver and its appendages, and upon the salivary glands.

That these articles, as well as all others, first act on the general system, before they affect the organs which are liable to be permanently excited, is an important consideration. It is often the case, that the general action of the system is such, that the first impression made by any one of them, has a tendency to defeat the object which is contemplated as the ultimate intention. Digitalis, for example, if administered in a case of pulmonary inflammation, will be found altogether inappropriate. Yet the same article in a chronic affection of the lungs, consequent on having relied on insufficient blood-letting, sometimes acts most effectually. Digitalis, then, excites too much on general principles, to be appropriate in cases of great recent inflammation. But when there

remains some effects of congestion in the capillary vessels, which keep up irritation, the excitement given to the system generally by the digitalis, seems to convey additional energy to the capillary absorbent vessels, and make an impression on the heart, which, for a considerable length of time, in a very peculiar manner, renders it less irritable to the touch of the blood, which it is compelled to admit at every diastole. Our conjecture here may possibly be incorrect, but we have several times used digitalis without effect, and judging that the excitement in each instance was too strong, we have let blood, and immediately found our expectations realized. Every man of experience in the practice has found cases in which the general action of the system was too great, or its susceptibility of being excited too acute, to acknowledge the power of mercury, even as a cathartic, and very often as a sialagogue or general alterative. This is so common that it is now a settled rule, that in almost all cases, the use of the article ought to be preceded by sufficient blood-letting. The same may be said of antimony as a diaphoretic: of nitrate of potassa as a diuretic, and even of jalap and calomel as cathartics. That there is some peculiarity of impression made by each particular agent, which is inseparable from its touch when introduced into the system, is a truth as certain as that the effect is a general one. For this is proved by the uniformity of the particular phenomena which follow the use of each. And in fact, we are inclined to believe, that the general impression would appear to observation, to be identical throughout the system, if every organ were prepared to make report. Hence it is, that in frequent instances, when emesis is expected, we are met with catharsis, and vice-versa with both, when one only is desired. And it is from this cause, that we sometimes find it impracticable to procure the particular effect at all. Nothing is better known to the practice, than that very often a desire to procure a salivation is

defeated by an incorrigible tendency of hydrargyrus to act on the bowels. This fact calls to mind another consideration, the reverse of that just now disposed of; which is, that as all medicines first make an impression which enforces a general action sui generis, before the particular action can be exhibited, which is only consequent on the general action, therefore, it is as indispensable that the powers of the system should be able to sustain the general action in this last mentioned instance, as that they should be reduced down to an appropriate standard, when too high to consent with the peculiarity of impression which it is intended to make.

These remarks in some sort explain the obscure and mysterious subject of specific action. Whatever kind of an impression is made by any article of the materia medica, it is felt by the whole system, but by some one organ more particularly and for a longer time. This is the whole account of specific action.

In further confirmation of the correctness of this viw, we add, that syphilis can be cured without mercury, cinchona can be substituted by a great variety of stimulating articles, in the cure of intermittents; tetters, ringworm and itch are cured without sulphur, and except vaccination for preventing variola, there is almost no remedy which cannot be substituted by some other, in almost any case; which proves unequivocally, that there can be no absolutely specific action, according to the general acceptation of that word. Again, as our medical agents are all excitants, with greater or less power, and have a tendency to determine the sympathies of the system, one to this organ, another to that, it is within the ability of the therapeutist to divert those sympathies when determined by disease upon any particular organ, to some other, so as to produce what is called a revulsion. In this way, in the commencement of an attack of sickness, a decisive emetic or cathartic, is followed by a complete restoration to health; but

if the operation of either be too light to accord with this view of revulsion, it will generally be ineffectual. A sore ptyalism will serve to cure some species of head-ache, by the same law, or a reiterated irritation of the primæ viæ with light doses of calomel and ipecacuanha, will cure a dysentery in some of its forms.

It appears very clearly, that the therapeutist must know the character and power of the articles he is to use in his profession, the general action, and the effect of that action on the general system; the particular action and the state of the general system, required to be present, in order that the particular action may be properly and usefully developed.

It was remarked above, that more than one organ is sometimes diseased at the same time, and of course that our practice must be modified in reference to each of the affected organs; and our remarks in part went to show, that different agents might be employed at the same time, having in view, in the use of each, the particular affection to which it is known to be applicable. Experience justifies this; for we are in the habit of administering in the form of pill, bolus and tincture, two or more articles, with the intention to meet complicated cases. Such compound medicines, however, are chargeable with empiricism, in all cases in which the therapeutist is not prepared with satisfactory certainty, to know that the combination is not incompatible with the laws of chemical affinity; and in the next place, that the effect of either on the general system, will not render it unfit to receive the impression intended to be made by the other; that there is no contrariety in the action produced by one, to the action intended to be produced by the other; that the condition of the patient is such, that the agency of each may be safely accomplished at the same time, and that either experience, or a very rational and satisfactory analogy affords

proof, or properly justifies the expectation, that such a composition may be used in such cases, with safety at least, not to say certain advantage. But after these remarks, it is proper to add, that a sufficient acquaintance with chemistry, with anatomy, physiology, pathology and therapeutics, will always justify a discreet use of such combinations of agents; and in cases of great difficulty, when known remedies judiciously administered fail, to make trial of other agents; such as analogy would suggest; and have recourse to other combinations, predicated on the accomplishment of other revulsions or irritations.

CHAPTER IV.

EMETICS.

"An emetic is a substance which excites vomiting by a specific impression on the stomach, independent of mere distension from quantity, or of nauseous taste or smell." This definition admits of no difference of opinion. But as to the modus operandi, or the mechanism of vomiting, physiologists are not so well agreed. Experiments have been made, apparently with great and equal fairness, which have led to very different conclusions. Some have served to prove, that in the act of vomiting, the stomach is quiescent, and that its contents are ejected by being forcibly compressed between the diaphragm and abdominal muscles. Others, that vomiting is effected entirely by the contraction of the muscular coat of the stomach—and many now entertain this opinion concerning it. But if we have made correct observation, there is a co-operation of the abdominal muscles and diaphragm, together with an inversion of the peristaltic action of the stomach, in producing emesis. If we inquire how emetics excite these actions of the stomach and muscles, so as to perform the effort of vomiting, we are compelled to admit that we do not know. Forty years ago, on reading Dr. Darwin's speculations on the subject, we considered them very specious. He supposed, that when nausea is produced, not the stomach only, but the whole system is in a state of temporary debility; as the nausea increases, the natural powers of the stomach are more and more diminished, until they entirely cease, and then give rise to an inverted motion of

its muscular fibres. This view, he thought, was confirmed by the fact, that debility produced by blood-letting to syncope or by concussion of the brain, is almost uniformly followed by vomiting. All this is fanciful, being a statement of the appearances as they occur, with his supposition respecting the causes of those phenomena, and nothing more. When we introduce an agent intended to produce a certain effect, a train of events is exhibited, by the observation of which we arrive at an approximation to the knowledge of the general character, and the order of those events; and this is nearly the amount of our knowledge of the modus operandi of our remedy. Dr. Eberle, in making a statement of his views, says, "The emetic, in the first place, makes an impression on the sentient extremities of the nerves of the stomach. This impression is immediately referred to the sensorium commune, in consequence of which, its natural energies are diminished, as is evinced by the langour of both the intellectual and corporeal powers. But as the sensation of an irritated organ, depends in reality, on a peculiar excitement in the sensorium commune, so we may infer, that the sensation of nausea, is the immediate and necessary result of the diminished and peculiar cerebral excitement referred to the stomach. That is, in fact, the case is demonstrated by the vomiting and nausea, which are sometimes excited by the sight, smell, taste, or even thought, of a disgusting object." Here, however, the Doctor admits our progress is arrested, and this is, in fact, Darwin's definition, with no more than a mere change of phraseology. The simplest statement imaginable would explain the invisible agency, full as well as Darwin, Cullen, Chapman, Eberle, or the entire host of physiologists. For when it is said, that certain substances are peculiarly offensive to the stomach, that by a law of the animal economy, when any such substance is introduced into that organ, an effort is made to eject it by the act of vomiting—that like all other animal functions, the process is re-

ferrible to the sensorium under whose influence, in a way inexplicable, it is performed—all is said that is known on the subject. However, we cannot regret our having inquired, how far the subject admits of explanation; especially as we have learned something useful by the excursion. We have learned, that an emetic produces temporary debility, that the state of the system in emesis, is analagous to that whtch immediately follows a decisive blood-letting; and that in producing this effect, it checks immediately upon the sensorium commune. For these facts, we may find an important use in the sequel.

When an emetic is taken, its first effect is, an uneasy sensation at the stomach, which gradually increases up to a sense of nausea. In the mean time the pulse becomes feeble frequent and irregular; the face turns pale, a general coldness pervades the surface, and the skin displays the cutis anserina. Presently the vomiting commences, when the face suddenly becomes flushed, the capillaries being well filled with blood; and at last a temporary diaphoresis is produced. So soon as the vomiting ceases, the sickness retires, giving the patient an agreeable respite, during which the system recovers from the langour consequent on the effort of vomiting. This great effort, and the consequent langour, constitute the principal importance of an emetic.

In the first instance, the effort evacuates the stomach. But the pressure made by the abdominal muscles very often causes the contents of the duodenum to regurgitate into the stomach, so that bile is copiously discharged. Hence we infer, that the liver and gall bladder, must likewise be considerably compressed between the abdominal muscles and the diaphragm, which produces a more copious discharge of bile into the duodenum. The previous nausea induces a degree of relaxation in the ductus communis, which circumstance is favorable to that process. The appearances of the matter which is discharged by vomiting, confirm this ac-

count. During the first efforts, very little bile is thrown up; but by the abdominal pressure and agitation, the biliary ducts and gall bladder are emulged, their contents thrown into the duodenum, and the subsequent and more intense strainings pass them into the stomach, when by vomiting they are at length discharged. In cholera we observe the same thing, since no bile is discharged, until vomiting has continued some time. We may then infer, that vomiting acts powerfully on the nervous system—evacuates the stomach—emulges the vessels of the liver, and by the great agitation and pressure made by the effort, upon the whole of the abdominal viscera, has a tendency to produce important changes in the condition of all the vessels, pertaining to the portal circle. Their effect upon the sensorium is powerfully and happily displayed by administering them after blood-letting in the commencement of pleurisies and other highly inflammatory affections. The venerable Mr. Finley of Pennsylvania, so long known as a distinguished member of Congress, informed us, that he ordinarily prescribed for some of his poor sick neighbors, and that it was his practice, first to bleed freely, and immediately afterwards to administer a decisive emetic.* His success was great, and the practice is worthy of imitation.

In our elementary observations we stated that after blood-letting, for a certain length of time, there follows an accumulation of sensorial influence. This influence when accumulated, will invariably direct itself upon the structure which may be in a condition of irritation. Hence it is, that when a very acute pain, such as occurs in pleurisies, may be apparently relieved by a decisive use of the lancet, unless measures be taken to prevent the accumulation referred to, when the system shall react, the pain will return with a degree of violence, in some instances as distressing as it was at the first. A decisive emetic lessens or prevents this inconvenience; if

* By this practice hemorrhagic reaction was properly regulated.

administered immediately after the depletion. A counter impression is made on the stomach by this practice, by which the accumulating sensorial influence is used up as it rises.

If it can be ascertained that a stitch in the side is really attributable to an inflammation of the pleura, without any complication of the parenchyma of the lungs, the employment of a large dose of opium and calomel, will more effectually secure the same result. So also in a case of peritonitis without complication, if we bleed to fainting, and follow the use of the lancet with a similar dose of opium and calomel, the effect will be most comfortable.

An emetic may follow the blood-letting without hazard, and generally with great benefit. Very frequently a large sinapism or epispastic is greatly beneficial, for the same purpose. To meet the intention properly, the mustard ought to be applied fifteen or twenty minutes in anticipation of the intended depletion. By this last precaution, employment is given to the accumulating sensorial influence, and the action of the capillaries of the skin is simultaneously secured.

Hemorrhagic reaction, which is the effect of an accumulation of sensorial influence, ought generally to be prevented by similar means, whether the depletion which is the cause of it shall have been intentional or accidental.

It is a common practice in treating a case of pulmonitis, to let blood freely, and during the interval between the exacerbations, to make a liberal use of antimonials. This method in some degree accomplishes the same intention. But the subject rightly understood, will eventually lead every man of skill, to the employment of measures which will effectually regulate the sensorial influence, and maintain a continuous action of the capillaries of the skin. Until something less offensive shall be discovered, an emetic will merit special attention, as one of the most valuable agents for the accomplishment of this important end. Permit us to insert in this

place a few memoranda, which may be found useful to the practitioner of medicine.

Emetics lose nothing of their power by repetition; on the contrary, the stomach becomes more susceptible to their impression by their frequent use. Vomiting may be made subject to volition, by habitual attempts to excite it. Dr. Cullen mentions an instance in which, by frequent practice, one-twentieth part of a grain of tartarized antimony was an effectual dose.

In some instances of protracted fever, an ordinary portion of tartar emetic or ipecacuanha will fail to produce emesis; and if the dose be enlarged, it will produce hypercatharsis. This is an important fact, inasmuch as the intention imprudently pressed, might produce fatal effects in one day. Again the system may be in a state the reverse of this, and an emetic be ineffectual, till the sensorium is released by blood-letting.

By violent and repeated retchings, jaundice is sometimes induced. The liver and gall bladder are, in that case, too much pressed, and the bile regurgitating, is carried into the vena cava. According to Haller's experiments, an injection thrown into the hepatic duct, will escape by the hepatic veins; this is also confirmed by the experiments of Saunders, who found that water injected in the same direction, will return by the veins in a full stream, though very little force be used. This kind of jaundice needs no interference, as the bile will be eliminated by the kidneys in a very few days.

Severe vomiting should commonly be avoided in the advanced states of pregnancy, in hernia, and in prolapsus uteri.

Emetics are advantageously employed in such diseases as are attendant on persons whose abdominal organs are in a sluggish state. In all such instances, however, blood-letting, and other appropriate evacuations, must precede the use of the emetic, especially, when there is a tense pulse and acute pain.

Effused fluids are sometimes rapidly absorbed under the influence of an emetic. This has led to the supposition, that emetics increase absorption. But the same result would follow, if they produce a diminution of the power of the exhalents. And as blood-letting well timed and repeated, will produce the same effect; as the use of nitrate of potash, &c. sometimes affords relief in a similar manner; therefore we may infer, that emetics are useful in dropsies because they make a favorable impression on the nervous system.

Experience has established the value of emetics in diseases of the brain. They are useful in asthenic mania, blood-letting having been premised. They restore calmness to the action of the vessels of the head, which in such cases is particularly desirable. They are also especially beneficial in melancholic mania, in which it is supposed the brain is languid, in consequence of imperfect sanguification. In hypochondriasis physicians generally believe, that some chronic visceral affection must lie at the root of the evil, and it is very probable that the good effect of emetics in such cases, are consequent on the impression made by them on the stomach and liver, by which the condition of the portal circulation is improved.

Emetics are used extensively and with great advantage, in almost every form of fever. If administered in the forming stage, they often arrest its progress. "Antimonial emetics," Dr. Armstrong says, "have been very generally recommended in typhus fever, and according to our observation, are serviceable when the fever takes on a complicated form, commonly producing an improvement in the condition of the skin, respiration and pulse; and perhaps, it is on the power which they possess of determining the blood to the surface, and of changing the morbid states of the circulation, that their efficacy depends."

In pneumonia typhoides, emetics will be found almost invariably of great service. Taking care however, in this as

well as in any other affection, to prepare the system, if necessary, by previous blood-letting. In this disease the remedy may be administered under circumstances and appearances, which would forbid it in other affections. In cases in which there are much distress and pain in the chest, and even when the ordinary signs of congestion are present, emetics may be fearlessly administered, and they will be found to promote expectoration.

Fifty years ago, in treating bilious fevers, the first prescription was an emetic; this was followed by a cathartic, the practice to be repeated once or oftener; then the effervescing draught was to be administered, till the type of the fever could be sufficiently developed. If remittent or intermittent in its form, it was encountered with a sufficient quantity of bark, &c. All this was regular empyricism; and yet it was often successful. Dr. Sydenham taught the necessity of setting out with one moderate blood-letting, and the practice afterwards partook of a similar cast. As bilious or intermittent fever occurs in this country, almost every case will receive benefit from an emetic, once or twice repeated; but many will need previous blood-letting. Perhaps it ought to be admitted, since it is the opinion of many good physicians, that emetics prepare the stomach to be more susceptible of the impression of other articles; and consequently give them a full opportunity to display all their powers.

In eruptive fevers, (exanthemata) emetics are often indispensible. This is the fact in *scarlatina anginosa*, but most of all, in its malignant form. In these affections, Dr. Armstrong says, "When emetics are aided by the warm bath, they tend to free the system from the pressure of the plethora of the internal blood vessels, so frequently observed in the commencement of this disease, and by thus equalizing the whole circulation, to render the future case, most commonly, mild and manageable."

Dr. Smith, in his record of cases admitted into the fever

hospital of London, lets us know, that he let blood decisively in treating scarlatina; we refer particularly to cases XXVIII and LVI. The first was bled sixteen ounces on the third day, the last sixteen ounces twice on the fifth day; they both terminated fatally. If perchance this work should meet his eye, we would call his attention to a few facts, for the establishment of which he has himself done much. He holds, that scarlet fever in every other circumstance but that pertaining to the eruption peculiar to it, commences and progresses like idiopathic fever; the train of events and the order of the train being the same. The sensorial structures, the thoracic viscera and the viscera of the abdomen, are all liable to the injuries common to fever. It differs from other fevers, by no specific mark, but that of the eruption. If therefore, we can have opportunity to bleed in anticipation of the establishment of the fever, it may be done with decision, and invariably with good effect. If this advantage be lost, and the fever be permitted to establish itself, more mischief may be apprehended from ill-timed depletion in a case of scarlatina, than in fever with the same apparent degree of severity in the ordinary form. Eruptive fevers, in the degree of their intensity, invariably present with other symptoms, great frequency of the pulse. According to our experiment made by external heat, as stated in chapter third of our elements, great excitement of the skin checks heavily on the existing stock of sensorial influence. If therefore the fever in its general character be very severe, serious, possibly fatal congestions, may have been already established, before the violent action of the capillaries of the skin which is exhibited in the eruption shall have begun to appear. If the heat and redness of the skin be very great, it will be found in almost every case, that blood-letting is improper, and if pain in the head and back, &c. shall have been sufficient to justify the belief, that fearful injections may have taken place, the lancet ought by no means to be used. Circumstances

might occur, to justify the use of leeches for the relief of the head and throat, but even this practice should be employed with great circumspection. A gentle emetic, daily administered, if it be practicable, would be preferable.

In many instances, when the skin shall have been very red for a day or two, the color changes with an inclination to a livid hue. This change indicates great prostration, and it may be inferred from it, that the sensorium is impaired, besides which, there will be symptoms proving the existence of thoracic and abdominal complication. The skin itself is in danger of losing its vitality—to blister the surface would be to institute the condition of gangrene. The stock of vitality is so low, that the whole surface needs to be cherished by wrapping the patient in a soft blanket, wrung out of hot water and alcohol, or vinegar, which should be warmed afresh, every hour.

Emetics have been strongly recommended in some varieties of erysipelas. Desault considered this affection, in its common and genuine form, to be a bilious disease, and he treated it exclusively with antimonial remedies. We too have great confidence in the value of antimonial emetics in this disease, especially if they be properly aided by a daily use of the alcoholic bath, which is according to the views of Dr. Armstrong.

In the early stages of measles and small pox, when the chest seems oppressed, threatening the lungs with congestion, Dr. Armstrong thinks that vomits are strongly indicated. He says, "when the lungs have been exceedingly oppressed, and particularly, when vomiting has been absent, I have often seen the most striking relief follow an antimonial emetic, which may fairly be ranked among the most efficacious remedies in pulmonic congestions. In this climate, however, a majority of cases in measles and small pox, will require previous blood-letting. We have seen a case of small pox, which required four blood-lettings, in the course

of the day preceding the appearace of the eruption. We proceeded according to the indications, and did not even suspect small pox, until it was beautifully displayed on the following morning. In measles, whenever the lungs are distressed and the pulse requires it, we let blood before we administer the emetic or the bath.

The use of emetics in croup is universally admitted, insomuch, that we believe they are now every where in this country thought to be indispensable. In ordinary cases, after using the vapor bath and suitable rubefacients to the sternum and throat, a decisive emetic serves to remove the disease. But in violent cases, when the breathing is very difficult, and the arterial system much disturbed, blood-letting is necessary. And it may be considered a good rule of practice, if the hot bath, rubefacients and emetics fail to afford speedy relief, that blood-letting should be immediately added and carried sufficiently far, at once to make an effectual impression. Dr. Ferriar recommends blood-letting to deliquium, and in this we concur. If the case be violent it should always be considered as a struggle between the Doctor and Death. The effect of the disease upon the state of the blood, is such, that the sensorium must soon lose its energies, and the whole system sink into fatal prostration. The blood-letting has a tendency to relax the spasm of the glottis, to resist the inflammation of the trachea, and prepare the system for the full effect of the emetic. The great insensibility of the stomach, and indeed all the violent symptoms, may possibly be consequent on some peculiar cerebral congestion. Blood-letting, therefore, releases the sensorium, and the nerves of the stomach are prepared to acknowledge the power of emetic substances. In the latter stages of croup, emetics are still useful, with a view to promote a more complete and effectual exhalation and expectoration of the viscid mucus, which is so often troublesome towards the close of the disease.

In cynanche tonsillaris, bleed decisively and give an emetic.

In cases of pneumonia typhoides, emetics are much relied on. Having taken measures to prepare the system by the alholic bath, and having let blood or not as the case shall require, then suitable emetics operate with the best effects. The embarrassment of the lungs, and of course of the circulation, generally in such cases, is attributable to a strong tendency to venous congestion, and mild emetics frequently repeated, will have the happiest effect on the returning circulation. When this practice shall have been sufficiently repeated, the system will be found in readiness to profit by the remedies which are ordinarily recommended; as small doses of opium and camphor, aided by bran tea, acidulated barley water, &c. remembering throughout, that blisters are of very great importance with a view of relieving the pulmonary affection, pain, &c.

There is another affection which is vulgarly called bilious pleurisy, (*pneumonia biliosa*,) in which emetics are likewise greatly serviceable. Richter speaks in high terms of the effect of this practice, in removing excruciating pain in the thorax. Stahl also strongly recommends the use of emetics in this kind of pleurisy. As this disease frequently attacks persons of intemperate habits, and those particularly, whose livers are more or less torpid, it often takes on symptoms not much different from pneumonia typhoides. Hence it may present considerable variety of appearance; from a high degree of inflammatory action requiring decisive blood-letting, down to a degree of prostration in which blood-letting is altogether inadmissible. After depletion when necessary, and the employment of measures for regulating and fixing the capillary excitement by the vapor bath, epispastics, &c. when blood-letting is forbidden, the emetic may be administered, *pro re nata.*

It is thought by many, that emetics will be found greatly

useful in acute ophtalmia in all its various forms; and why not equally so in chronic cases? After the necessary blood-letting and a bold cathartic or two, we would not hesitate to have recourse to this practice.

Many very respectable writers recommend emetics in the cure of acute rheumatism. Horn, in the Medical Recorder, recommends them very highly, and considers them more useful than any other class of remedies. His method is, to repeat them every day, up to the number of fifteen or twenty. But the disagreeableness of vomiting, will always make it difficult to carry such a practice into full effect. Richter speaks of a form of rheumatism, which occurs in low and marshy situations; he calls it *rheumatismus acutus gastricus;* depending, according to Stahl, on an irritation from vitiated or redundant bile in the *prima via;* in which, emetics are greatly serviceable. In all cases of this sort, the charges commonly raised against bile, ought to be attributed to venous congestion of the abdominal viscera. By being locked up in these viscera, the blood is not sufficiently circulated through the lungs, of course the sensorimm is imperfectly supported and the blood is not sufficiently warmed. The system when thus poorly supplied with energy and warmth, if exposed to the vicissitudes of the weather, will be very seriously affected in a short time; and if it partake of that species of temperament, which is well inclined to take on rheumatic action, the disease as described by Richter, readily follows. It has frequently occurred under our observation, and it will be readily relieved by an alternation of emetics and cathartics. The most effectual practice is, to take the first steps as we would do in any other fever with congestion of the abdominal viscera—bleed, cup, or leech, according to circumstances; apply external heat, and after using hot cloths wrung out of hot water and vinegar, administer an emetic. Afterwards proceed according to circumstances, having recourse to blood-letting as the circulation

may require it, always following the use of the lancet with an emetic; but still having regard to the condition of the portal circulation, introducing suitable doses of jalap and calomel, &c. as there may be occasion. A physician having experience in the treatment of bilious fever, would not long be at a loss to know, that this kind of rheumatism partakes greatly of the peculiarities of that form of fever, and of course, that it must be accompanied by a similar condition of the abdominal viscera. He will be led by analogy to employ emetics. If he have correct views of general principles, he will add blood-letting when necessary, and cathartics, and sinapisms, and epispastics, and external heat and quinine! Perhaps no particular disease, affords stronger proof of the unity of general principles, or of the great importance of a right understanding of the manner in which sound medical philosophy can avail itself of the occasion, in any instance of disease—only let it be sufficiently removed from under the blind dictates of nosology.

CHAPTER V.

EMETICS—CONTINUED.

If emetics are beneficial in the treatment of rheumatism when complicated with an irregular condition of the abdominal viscera; by analogy, they ought likewise to be beneficial in gout; and there are authorities which justify the practice. Our own experience in this painful disease, is more limited than in most other affections which are common to this country. But we have seen it often enough, in its different stages, to know, that to a very considerable extent, general principles ought to be regarded in this, as well as in other diseases. A majority of patients in gout, will require bloodletting, in their youthful paroxysms. As they advance in life, they may require the various modes of treatment, which will be found detailed in the books; and when there are indications to justify the use of an emetic, it ought to be administered; but not in those cases in advanced life, in which the disease has a tendency to fasten on the stomach. Mr. Alexander Small, a surgeon at Minorca in the Mediterranean, speaks in very high terms of the efficacy of tartarized antimony, in his own case of gout. He sometimes combined it with bark, and found a combination of the two articles, to act as a mild aperient.

Mr. Saunders, in a treatise on certain diseases of the eye, found that the use of tartarized antimony, so as to excite nausea or full vomiting, was attended with great success. "In that variety of inflammation of the eyes called Egyptian opthalmy, Sir W. Adams speaks of the use of emetics in the strongest terms of praise. Emetics have been long since

employed in the treatment of gutta serena. Richter considered the disease to depend on some erroneous condition of the abdominal viscera, and employed them in conjunction with his deobstruent pill.

Emetics have been recommended in hemopthysis. Dr. Eberle raises serious objections to their use, for reasons, however, in which we are not prepared to concur. He thinks the full inspiration by which the lungs are expanded in vomiting, would afford a more ready escape to the blood through the bleeding orifice, and that the effort must necessarily give an additional impulse to the circulation, both of which considerations ought to be weighed. Moreover, he thinks the pressure of the abdominal muscles and diaphragm, must impede the circulation in the abdominal aorta, which would therefore give a greater impetus to the blood through the superior arteries." An emetic ought not to be administered in any case of hemopthysis, when the arterial action is tense, without previous blood-letting. If the loss of blood have been sufficiently great through the ruptured blood-vessel, of course, that would be sufficient. But this never occurs, unless the rupture be very considerable. In all such cases, therefore, Dr. Eberle's objection is worthy of regard. The greatest degree of stillness ought to be recommended. But in most ordinary cases, it will be found useful if not necessary, to let blood once. On the supposition that this operation has been recently performed, the vena cava supplies the pulmonary arteries, and the pulmonary vein supplies the aorta;—administer an emetic, it first produces nausea, which reduces the power of the general circulation; then, when the act of vomiting comes on, the excitement of the surface is immediately increased. The vomiting is no sooner ended, than it is obvious, that the general circulation is equalized in a very harmless and moderate way. We infer, therefore, that the effect of the emetic on the general circulation is such, that the vena cava is not prepared to overstrain the

pulmonary artery, within the short time occupied by one or more contractions of the abdominal muscles and diaphragm in vomiting, and that the hindrance given to the abdominal artery is not sufficient, within the same length of time, materially to hinder the discharge of the pulmonary vein. Moreover, the general diffusion of excitement which takes place in the whole cuticular surface, more than compensates any mechanical inconvenience, which the act of vomiting can possibly bring to the circulation. We are aware that Dr. Cullen found one case, in which an emetic increased the hemorrhage to an alarming degree. This we could expect under two circumstances. If the open vessel be large and the rupture extensive, no means ought to be used, which would compel the patient to move, and if the case require blood-letting, that is, if all the vessels are in the condition of injection, it is equally obvious that an emetic ought not to be employed, till after the necessary depletion. It is important to attend carefully to the fact, that hœmopthysis is preceded by plethora and fever. We once saw a case in which, from the state of the pulse, we predicted a speedy occurrence of an attack of this disease, and before we could get ready with the utmost expedition to let blood, an alarming hemorrhage took place, and it terminated fatally. Again, there will be found a constriction of the superficial vessels, concentrating the blood into the viscera and producing a general stress upon the central arteries. In every such case, after a moderate blood-letting, an emetic will be useful. We constantly use remedies of this sort, so far as to produce nausea, in almost every case for which we prescribe in this disease.

Dr. Eberle is disposed to think that the same mechanical reasons for objecting against the use of emetics, in hœmopthysis, may be adduced in their favor in uterine hemorrhages. If he had merely insisted, that the same objections do not lie in the latter case, which have been adduced in the former, we should have had no objection to the reasoning, or its ap-

plication. But it is important that we should not be misguided in our opinions of the modus operandi of medicines. The pressure made on the aorta must be unimportant, because it is of so short duration. Besides, if it be considerable, it must imply an increase of its injecting power, during the time of the compression; unless, indeed, we can be made to believe, that the pressure is made on a single point, after the manner of a ligature. The proper conclusion is, that emetics are useful in hemorrhages, because they have great power over the whole system, and do much towards the establishment of a healthy general action, and thereby correct any morbid determination of the sensorial influence.

In the treatment of dysentery, emetics have been long known and used, as being almost indispensable; and when it is no more than a modification of marsh fever, which is often the case, emetics produce the same happy effects which follow their use in bilious fever. Sir John Pringle made use of this practice, and Clark, in his treatise on the diseases of the East and West Indies, informs us, that he derived the greatest advantages from the employment of emetics in this disease. Cleghorn says, "when dysenteries begin in the form of diarrhœa, without fever or fixed pain in the belly, the first thing to be done is, to empty the intestines of their acrimonious contents, as soon as possible." For this purpose he used ipecacuanha with cerated glass of antimony, in doses sufficient to operate freely, both by emesis and catharsis. In accordance with this practice, thirty or forty years ago, the planters in Virginia were accustomed to administer an ounce of sulphate of soda, together with a dose of tartarized antimony. The operation was considerable, but very commonly produced an excellent effect. It would be necessary, however, to keep in view all the precautions which are to be regarded in any other disease, and if there be a tense arterial action, and particularly if it be accompanied by pain in the abdomen, blood-letting ought to precede every other remedy;

except in such cases of a secondary sort as occur after the system has been previously prostrated. In the treatment of diarrhœa, also, emetics are often found to be very beneficial; but in this as well as in dysentery, or any other affection in which the remedy is useful, its value is chiefly referable to its tendency to equalize the circulation, agreeably to the view already taken.

In *mania a potu*, which arises from the intemperate use of ardent spirits, emetics have an excellent effect. This is the practice at present in Philadelphia, where it was introduced by Dr. Klapp. The same practice is pursued in other places, and will probably become general. It must be remembered, that the stomach is often extremely insensible to the operation of an emetic, and therefore that large doses are necessary. So soon as the vomiting can be made complete, the mental hallucinations are immediately much corrected, and if the case be of a mild form, a single dose serves, sometimes, to effect a cure. The practice, however, ought to be repeated, from two to six or eight times, at such intervals as the judgment of the physician may deem it proper. We have been in the habit, chiefly, of relying on opium for the cure of this affection, and since we adopted the practice, have not failed once to recover our patient. But the practice of Dr. Klapp is, to rely almost entirely on emetics, voiding the bowels if necessary with suitable aperients. As it respects opium, he doubts the propriety of using it, except the emetic medicine should induce hypercatharsis. Dr. Eberle confirms this practice, assuring us, that emetics induce sleep more readily than opium, under any mode of management. In the cases which we have attended, the patients were much prostrated, and there was an unequivocal demand for opium and wine, and these remedies have had the happiest effect.

We have intimated, that emetics would be found useful in other varieties of mania, and in hypochondriasis. In the commencement of a paroxysm of rage, if a sufficient dose of

tartarized antimony could be introduced, so as to excite copious emesis, it would scarcely fail to quiet the patient, and at the same time, it would promise advantage in view of ultimate recovery. We knew a man in Virginia, who was in the practice of drinking to excess, at three or four periods in the year; when he commenced, seldom ceasing, until he had brought on mania. So soon as it had arrived at a certain state of violence, the family would send for medical aid. By this time he had ceased to be able to serve himself with his drink, and a servant maid was compelled to hand it to him. We then could pour into his tumbler a portion of a solution of tartarized antimony, instead of water, and it was interesting to see how soon vomiting would restore his intellect.

An emetic will rouse the hypochondriac patient from mental and physical torpor; so that other remedies can be made to act. The modern practice in this case, is predicated upon the opinion, that the disease is consequent on chronic visceral congestion. Hence the employment of blue pill and occasional saline purgatives—the same sort of practice which is recommended in chronic affections of the liver and spleen. Frequent emetics in association with this practice, will always be found to be useful.

In puerperal mania this practice has been found to be particularly beneficial. When the mechanical pressure made by the fœtus, has subjected the viscera to the condition of debility peculiar to gestation and parturition with its accompanying depletion, should a sudden collapse of the system occur, one of the consequent evils is, puerperal mania. Emetics seem to improve the state of the nerves, to agitate and resuscitate the torpid viscera; secretion and absorption are again established, and the patient is restored. But in this, as in any other affection, we must not be discouraged at an apparent failure upon the exhibition of a dose or two; it must be repeated as often as the case may require. If the

abdominal viscera be relieved, the sensorium will regain its functions.

In hysteria, so long an almost universally unmanageable disease, emetics are now found to be greatly useful. They are administered with advantage in almost every form of this protean disease, but more particularly in that form which is attended with complete suspension of the animal functions, bringing on a state resembling syncope. Dr. Dean, in a paper published in the Medical Recorder, vol. 4, page 259, says "it is in the chronic variety of this complaint, in which the common routine of what are improperly termed antispasmodic medicines produce no other than transient relief to the patient, that I have experienced the most permanent good effects from the administration of emetics. In cases of this description, when the patients had labored under the disease for ten years, and during that time by the advice and direction of respectable physicians, exhausted, with at most, but temporary benefit, the whole class of remedies which are usually prescribed, I have by the continued exhibition of vomits either entirely removed the complaint, or so far interrupted the habits of the diseased action in the stomach, that antispasmodic and tonic medicines, would in general complete the cure." Dr. Joseph Smith of New York, has recommended emetics in equally strong terms in hysteria and epilepsy; and he considers them "more efficacious than any remedy ordinarily employed."

In asthma, emetics are of unquestionable advantage, and particularly when lobelia inflata is employed as the emetic agent. We have used it in frequent instances, with decided benefit. Dr. Porter of Pennsylvania, informed us, that it had not failed in his hands to afford relief in any case in which he had tried it. Dr. Eberle is inclined to the opinion, that the result was due to the mechanical effect of vomiting upon the diaphragm, in enlarging the thorax and thereby making more abundant room for the passage of the circulation through

the lungs. It is probable that the expansion of the thorax does some good; but we are confident that the shock given to the nervous system, does much more; and the superiority of lobelia inflata, which is an antispasmodic, and almost a specific in the disease, goes far to confirm us in our opinion.

Every physician is accustomed to the use of emetics in whooping cough, and will admit with us, that they afford more benefit than any other remedy in our profession. Whooping cough is, however, often marked with strong signs of plethora and inflammatory action. In such cases, emetics alone will not be effectual. Copious and timely blood-letting will always be found necessary, and when such is the case, if not employed within a reasonable time, the patient will perish. In many instances where blood-letting is not used, the patient is subjected to an affection like croup, which is superinduced, and then, nothing but copious bleeding can possibly prevent a fatal termination.

Emetics have been recommended in apoplexy; but there are good reasons for doubting the safety of the remedy. It must certainly be very proper if an emetic be tried in this disease, always to precede it with a sufficient blood-letting. Although it really seems to be a doubtful remedy, yet if the patient be attacked immediately after eating, or if there previously existed known causes of gastric irritation, the use of an emetic is certainly indicated, and after the necessary blood-letting, it ought to be administered. But where there is no good reason to suspect a fullness of the stomach, nor any gastric irritation, the disease of course must be considered as essentially connected with an engorgement of the cerebral vessels. Under such circumstances, the violent struggle which occurs in the act of vomiting, must do more harm than good.

As to the use of emetics in epilepsy, the books give us very contradictory accounts; some recommending, whilst others condemn them. Now, as each party is entitled to

equal confidence, there remains but one way of reconciling them. We are willing to give due credit to both, and must therefore conclude, that each have used the remedy in different states of the system—the one probably without depletion, or before the system had, by time, become sufficiently passive to profit by the remedy—the other had reduced their patients artificially, or had the good fortune to find them reduced to their hand. To judge by what has occurred under our own observation, we are inclined to believe, that those who have found benefit from the practice, may have met with cases in which a morbid condition of the abdominal viscera had participation in the disease. We have frequently known the first paroxysm of bilious or intermittent fever in children, to commence with a violent convulsion. Possibly, then, some of the accounts may have been raised on occasions of this sort, and the commencement of an autumnal fever was considered the commencement of epilepsy. An emetic repeated as often as such convulsion should recur, would hardly fail to afford relief; and a nosologist might readily enough make such a mistake. But there is another view of the subject which deserves to be noticed. Dr. Thomas says "when an attack of idiopathic epilepsy can be foreseen, there is perhaps no remedy which will be more likely to prevent the paroxysm, than an emetic administered about an hour before its accession. This is a very judicious view of the subject. Dr. J. Clark used the sulphate of zinc in a state of solution, prepared with an aqueous infusion of ipecacuanha. Dr. Eberle succeeded in the case of a child, by repeating a dose of ipecacuanha alone once every third day.

There is of late a great prevalence of dyspepsia, and there can be no doubt of the value of emetics in this afflicting disease. We put it down as a general cause of this affection, that every subject of it, has by some means, acquired the habit of over-eating—we mean too much for the digestine powers of his own system. No two persons can have their

blood-making organs precisely similar. The demands of nature in each of ten thousand, if they could be accurately measured, would present a different account. But it is the constant practice of mothers and nurses, and too commonly of fathers and other relations and acquaintances, to press and tempt children and their young friends to eat, and almost to eat incessantly. The consequence is, that in almost every instance, when there is not an iron conformation of the viscera, premature death or dyspepsia, or some definite disease of an important viscus is induced. In dyspepsia there is generally a great propensity still to eat on; and whenever the stomach can be compelled to receive food, they continue to throw it in. By this imprudence, the system gradually runs into a worse condition, till eventually, a cure is impracticable. According to this view, nothing would promise so much, as a frequent use of emetics, in the commencement of this disease. They will not only evacuate and improve the state of the stomach and other viscera; but they also check the insatiate demand for food, which perhaps is the most frequent cause of failure in our attempts to cure indigestion. In the advanced stages of the disease, we cannot perceive how they can do much good. There are occasions, however, when we are obliged to employ them. Prof. Revere in a very good paper published in the Medical Recorder, says that persons of this description, whose digestive organs have become much debilitated, sometimes on taking food, which in the healthy state of the stomach is perfectly innocent and nutritious, will be subjected to great general distress, numbness of the scalp, violent cholic, acute pain in the side and bladder, vertigo, apoplexy and convulsions. He relates several instances of this kind, in which the efficacy of emetics was very promptly and satisfactorily manifest. Dr. Wilson Phillip, however, very properly cautions us against too frequent repetition of the practice, in the further and more ad-

vanced stages of the disease. He considers their use to be more or less important, according to the prevalence or recurrence of irritating matter in the *prima viæ*, and under other circumstances to be injurious, especially if too frequently repeated.

As it is supposed, that the good effect of emetics depends in a considerable degree, on their tendency to increase the activity of the absorbents, they have been much employed in every variety of dropsy. They have, however, been found to be more particularly beneficial in cases of anasarca and ascites. It is not greatly important to us to ascertain, whether emetics produce their good effect by increasing the action of the absorbents, or by diminishing the action of the exhalents; and by the by, we think they do both. They certainly improve the condition of the skin, and an improved circulation must carry over to the absorbents a better supply of the means of their support. By the nausea they lessen the force of the exhalents, giving the absorbents less to do; and by improving the circulation of the skin they convey the blood to the absorbents in an improved condition; and the consequence is, that the absorbent system is ultimately restored to health. It is not improbable, however, that the best effect of emetics is produced by the improved condition, which they in many instances secure to the great abdominal viscera; the blood is more perfectly elaborated, and consequently all the organs and functions of the system are repaired by that means.

Emetics have also been recommended in diabetes. Richter more particularly mentions several cases that were effectually cured by them. In many cases this disease depends on some visceral irregularity, and it is to be presumed, that such was the fact in many of the instances related by Richter. When the liver becomes inactive in its functional operations, we find the kidneys frequently performing secretions

in imitation of bile; in proof of a disposition to act a vicarious part for the liver. Even the skin evinces a similar tendency. There is a great difficulty in making a thorough investigation into the causes of diabetes. It never terminates in a short time, and of course *post mortem* examinations, however carefully conducted, would present very uncertain appearances. If, however, it should turn out, that emetics do commonly produce appearances, such as those noticed by Richter and bring up great quantities of bilious matter; and it seems in one case, that after such an evacuation the diabetes disappeared in one night; if the German physicians, who use these remedies very commonly in this disease, have detected its true pathology; the cure of diabetes by the repetition of emetics, will go far to prove, that this malady is one of the dread consequences of leaving the mesentery, when in a state of venous congestion, to be disencumbered by the unaided functions of the viscera.

The importance of frequent emesis in jaundice has been long known, and whether the disease be consequent on torpor, inspissated or viscid bile detained in the ducts or cist, or by a gall stone, the remedy is equally rational and proper. The relaxing or generalizing effect of an emetic, will be useful in preparing the system to come very advantageously under the agitation of vomiting, and the tendency of the mechanical pressure to emulge the biliary duct, must be useful where there is detention or sluggishness in the passage of the bile through the *ductus communis*.

After blood-letting and fumigation, if there should be delay in an attempt to reduce the swelling in a case of *hernia humoralis*, an emetic or two will be found useful; more particularly, if the tumor be very painful. But blood-letting and hot steam sufficiently repeated, are the most comfortable and effectual remedies that we have ever seen used in affections of this sort.

Dr. Hossack of New York, in a paper which was published in the Medical and Physical Journal of that city, details seven cases of obstinate constipation of the bowels, in which emetics were of great service to the patients. He says "that in the commencement of constipation, or in its more advanced stages, when the symptoms of inflammation have been subdued by the lancet, emetics may be very advantageously exhibited; both for the purpose of removing the hepatic obstruction and of counteracting the spasmodic constriction and pain, ordinarily attendant upon the disease." Our own observation confirms the propriety of this practice. Not unfrequently, the true cause of such constipation, is the painful distension of the blood-vessels of the mesentery and intestines, as well as a torpid or congested state of the liver. Such is the inconvenience of that state of things, that the stomach and bowels are insensible to the impressions made by a cathartic in the common way. After blood-letting, however, a sufficient portion of tartarized antimony renovates the condition of the stomach; the agitation of emesis wakes up the portal circulation; the liver and all its appendages are roused; and the detained and distending fluids are passed off; leaving the viscera ready to perform their functions. This exposition shall be made more satisfactorily, when we come to speak of catharsis.

And here, whilst in view of the *modus operandi* of emetics, permit us to suggest a thought respecting the unity of disease. We have seen in how many apparently different affections emetics as well as blood-letting, have been found by experience to be greatly useful, and we are prepared likewise to perceive, that the benefit attributable to the agency of emetics, is in no shape specific, further than the evacuation of the stomach is concerned. All their good effects as medicaments, are the results of a general agency, performed under the control of general laws, the operation of which is

improved by the shock imposed on the nervous system, by agitation, by evacuation and inanition. A considerable error in the liver, or any other organ, disturbs the general harmony; an ill condition of the blood in consequence of a torpid liver imposes unnatural labor on some other viscus, whose function is therefore embarrassed. One error involves a second, a second a third, and so on, until the contamination may be extended beyond the reach of recovery. And after all there is an unity of principle in the progress of disease, and an unity of agency in the *modus operandi* of the medicines, by which disease is to be removed.

CHAPTER VI.

CATHARTICS.

The intestines receive the chyme from the stomach, and aid in perfecting its assimilation for the support of the system. In performing this function, they are furnished with the secretions which are continuously supplied by the liver and pancreas, which, together with the secretions issuing from the pellicles of their internal surface, when commingled with the chyme, serve to change its condition, converting it into chyle. When the lactuals have taken up that portion of the chyle which is fitted for the purpose of nutrition, there is left a large amount of fœcal matter, which, if detained, would be obnoxious to health. The intestinal tube, therefore, is prepared to perform an additional service. It becomes a colaborator with the skin, lungs, liver, and kidneys, in exhaling and conveying away excrementitious matter. Suitable provision is made to lessen the inconvenience which would otherwise attend it, by causing the discharge to be made periodical. The length and folds of the small intentines, serve in some degree to detain the aliment in its descent, but the saccated arrangement and peculiar location and flexure of the colon, constitute it a reservoir for the fœces, so as to secure this important object. Infants and young children, have frequnt and comparatively copious alvine evacuations, with a peculiar odor. They take a greater portion of nourishment in proportion to their bulk, than adults, and render greater and more frequent discharges necessary. Adults are commonly

moved once in twenty-four hours, and the color and odor of their evacuations undergo a very great change from what they were in their infant and youthful state. There are great varieties, however, as to time, condition, &c., depending on the state of the viscera, and on habit. Some are always inclined to looseness; others are always costive; some have a call once in twenty-four hours; some once in three or four days; others once a week. We knew one man and one woman, both of whom, often went several weeks without any evacuation from the bowels. We made an artificial anus for a child, when three months old, which previously had a small aperture only, which, with some difficulty, admitted the introduction of a common probe, through which a fluid escaped, so as to stain its clothes. In every other respect the child had perfect health.

We commonly use cathartic agents, with two intentions; the one, to evacuate the bowels when in the condition of constipation; the other, to increase the secretion of fluids into the intestines; and this, in fact, is what we mean, when we speak of purging. It is in reference to these two intentions, that we distinguish between laxative and purgative medicines. The latter act by their stimulating power, which will commonly be in proportion to the quantity or dose administered.

But as in many parts of the intestinal tube, its contents are carried in a direction which has to oppose the laws of gravity, it is evident that a considerable force must be exerted from the stomach downward, or onward, in order to prope the alvine discharges in a regular manner. The force which performs this propelling effect, is called the peristaltic action, and this action is a regular series of contractions of the muscular fibres of this organ, from above downwards. An inadequate force of this action will produce constipation. The same may be the effect of mechanical resistance, or a defi-

cient secretion of the fluids intended for dilution, &c.; or more than one of these causes may combine to produce constipation.

If any article of medicine therefore, increases the alvine discharges, it must produce the effect, either by increasing the peristaltic action of the bowels, or by increasing secretions, or by removing the impediments which hinder its regular powers, or by producing these effects simultaneously.

Cathartics increase the peristaltic action, provoke an increased secretion, and so diminish the resistance made to the passage of the substances propelled, by lubricating the internal surface, and rendering the substances more fluid.

In the catalogue of agents of this class, we have articles which possess different degrees of cathartic power, which enables us to adjust them to all the variety of cases which can require their use. We have them too, with peculiar differences of agency, in relation to the parts of the intestinal tube, upon which they more immediately exert their action, and also in relation to the nature and appearances of the discharges which they procure.

As examples, calomel, gamboge, jalap, act more particularly upon the primæ viæ, and upper portions of the intestines; castor oil, colocynth, and some others, act with a more extensive range upon the intestinal tube; whilst aloes acts almost entirely upon the lower portion of the bowels. We have it in our power too, to make a selection of our article, in view of the kind of discharge we may wish to produce. Jalap, and the different saline purges, produce copious watery discharges. Castor oil and rhubarb, merely evacuate the contents of the bowels; whilst calomel and gambouge increase the secretion of bile, and carry it off in very copious quantities.

Dr. Paris seems to think, "that a medicine may act more immediately and especially upon the stomach, or the small or

large intestines, according to the relative facility with which its principles of activity, enter into solution; that those which are dissolved before they pass the pylorus, are quick and violent in their effects, and liable to affect the stomach; as is exemplified in the action of gamboge, &c., whilst some resinous purgatives, on the other hand, as they contain principles less soluble, seldom act until they have reached the colon. Colocynth, has a wider range of operation, because its principles of activity reside both in soluble and insoluble elements. Aloes again, being still further insoluble, passes through the whole alimentary canal, before it is sufficiently dissolved, and acts, therefore, more particularly upon the rectum."

These circumstances are particularly worthy of notice, both in a therapeutical and pharmaceutical point of view, since it will enable us to modify the peculiar action of these remedies, by having a due regard to their degree of solubility, and to select such articles as may most effectually correspond to the intention, in view of the circumstances of the diseases for which we may prescribe them.

If we would treat an ascites, we would naturally be induced to exhibit such articles as have the greatest tendency to evacuate much serum from the intestines. We of course select the saline substances. So likewise, in cases attended with a redundancy of vitiated bile, we would have recourse to those articles which act upon the upper portion of the intestines, and at the same time rouse the functions of the biliary system. We therefore exhibit calomel, gamboge, ipecacuanha, &c. If, again, we wish to evacuate the bowels, and at the same time produce some effect upon the pelvic viscera, as on the uterus in amenorrhæ, we then select aloes, because of its known effect on the rectum. In addition to these immediate effects of the different cathartic agents, they admit of application on general principles, which we have yet to consider.

1st. They diminish the action of the heart and arteries, and thererore are used with more or less advantage in most diseases of an inflammatory character. They produce this effect not merely by evacuating the bowels of their vitiated and accumulated contents, thus removing such causes of irritation, but they indirectly evacuate the blood-vessels, by increasing the secretions of serous fluid from the alimentary canal. Dr. Eberle thinks their operation in this respect, resembles in some degree the effect of blisters, which, though acting primarily as stimulants upon the sanquiferous system, reduce its action, as a secondary effect, by the effusion of the serum which they occasion. We are ready to admit the similarity as far as it obtains, but we object to the comparison made in this place. Blisters act chiefly by stimulation, cathartics by evacuation.

2d. Cathartic medicines promote the absorption of fluids, from the internal cavities. As they provoke a discharge of serum from the blood-vessels, they thus indirectly prepare the absorbents to take up a supply from those cavities, in which it may exist in a state of morbid accumulation. It appears to have been established by the experiments and pathological observations of Magendie and others, that absorption is accelerated, in proportion as the quantity of fluid circulating in the blood-vessels is diminished. It is thought moreover, that there is a constant effort in the system to preserve the regular portions of serum in the blood, and that any loss by one outlet is compensated either by an absorption from some of the internal cavities, or by the diminished action of one or more of the serous emunctories. For example, when the exhalents of the peritoneum effuse a preternatural quantity of serum into the abdomen, producing ascitis, the morbid diminution of this fluid in the blood-vessels, is in some degree compensated by the diminished action of the cutaneous exhalents and of the kidneys. But if we succeed in exciting the kidneys into a more perfect performance

of their functions, some new supplying power will be requisite to keep up the necessary proportion of serous fluid in the blood-vessels. The absorbents are therefore called into action, and the dropsical fluid is reabsorbed into the circulation, and then eliminated by the regular emunctories.

Cathartics irritate the exhalents of the internal surface of the intestines, by which a very great secretion of the serum is suddenly produced. The consequence is, a diminution of the effusion of the dropsical fluid; because the action of the exhalents, that is, of the arteries, is diminished, accompanied by an increased action of the absorbents, which go to work to supply the deficiency thus produced by the increased action of the exhalents, which is performed in obedience to the mandate of the cathartic.

Dr. Paris and others state, that cathartics often increase the effect of diuretics. For instance, if we give a diuretic remedy to a dropsical patient, it may be, it will produce a very insufficient increase of urinary secretion. The absorption remains proportionally small. Under these circumstances let a cathartic be administered. This will discharge a considerable portion of serum from the bowels, which will create a demand for the restitution of this constituent portion of the blood; consequently a new impulse is given to the supplying, that is, the absorbing vessels, which continuing after the operation of the cathartic ceases, will have the effect of supplying the kidneys with a larger portion of the elements, which employ their functions, and of course, it will appear that the diuretic is made satisfactorily effectual.

3d. Cathartics have a tendency to remove the torpor which so often prevails in the portal circulation; and in that way promotes the biliary secretions. They do this, in the opinion of Dr. Johnson, by exciting a brisk peristaltic motion of the intestines, whereby the blood which is accumulated and

almost stagnated in the portal circles is propelled forwards. This is one of the most important facts in view of the good effects of cathartics in the treatment of fever, particularly in children, and in the fevers which prevail in the summer and autumn.

4th. They provoke a determination of the circulating fluids, to the abdominal viscera, affording relief when necessary, to the vessels of the head and thoracic viscera. But to secure this intention, it is generally necessary to premise blood-letting. Dr. Paris says, "I have often noticed this fact, in contending with a plethoric diathesis, whenever bleeding preceded the purgative, the effect of the latter has been uniformly more speedy and considerable. In obstinate constipation, the same fact has been observed, and mild remedies have been known to act more powerfully when preceded by blood-letting, than potent ones have done, when exhibited antecedent to it.

After these four general statements respecting the probable modus operandi of this class of remedies, we will offer some therapeutic details, for regulating their use in particular diseases.

In almost every variety of febrile disease, cathartics are commonly considered indispensable, and as holding rank amongst the most important curative means we possess. The alimentary canal has been called "the storehouse of disease." Here our views differ materially from all we have seen written on the subject. One of the most respectable paragraphs that we have met is the following: "Whatever may be the original febrile cause, whether seated in the bowels or elsewhere, it is certain, that the secretions which are poured into the alimentary canal, are perhaps in almost every instance of fever, changed from their natural or healthful condition, to a state which renders them additional causes of irritation to the already preternaturally excited system." It certainly is important to remove such causes of irritation.

throughout the whole course of nearly all acute diseases. But their good effects are not confined to the mere evacuation of the vitiated and irritating contents of the bowels. They are useful on account of the indirect depletion of the blood-vessels and consequent subjugation of the vascular action which accompanies irritation. Commonly, in the first stages of all fevers, we should select such cathartics as are calculated at once to evacuate the contents of the bowels, completely, and procure an abundant effusion of serous fluid from the intestinal exhalents. With this intention, the saline cathartics are generally preferred in the ordinary synochus fevers. But if the disease be attended with functional derangement of the biliary system, which is generally the case in intermittent and remittent fevers, we add such articles as are known to correct disordered hepatic secretions; and with that intention, we add calomel to other appropriate cathartics.

Typhus fever was considered for ages as being essentially characterized by debility, and cathartics were almost universally considered improper in its treatment, until Dr. Hamilton, of Edinburg, established their utility; and the truth of his observation and experience is generally admitted. Dr. Rush long since called attention to the fact, that purging removes the apparent debility which frequently exists in the latter stages of acute diseases. In yellow fever, he often saw the prostrated strength of a patient suddenly renovated, by the operation of a cathartic. Irritating matters acting on the intestinal nerves, can produce very alarming debility. A meal of indigestible food, in persons of weak digestive powers, has often brought on the most alarming prostration of strength. We restrict our patients from taking articles which in health would be too light for their ordinary support, because we fear that their blood-making organs might be weakened, convalesence interrupted, or that a tumult would be

raised, dangerous to life. And if this precaution be reasonable, is it not obvious, that the retention and irritation of vitiated matters in the intestines of debilitated typhous patients, must certainly have a tendency to produce very pernicious consequences. That the secretions of the abdominal viscera are vitiated in typhus fever, and indeed, in all protracted fevers, there can be no doubt. The appearance of the discharges, the suspended digestion and morbid state of the fœces, sufficiently confirm it. If there were no other object in view than the removal of the morbid and irritating materials, we cannot fail to perceive the utility of employing mild purges, during the latter state of typhus fever. By removing such cause of irritation, we renovate the vital powers and prepare and provoke the intestinal emunctories to resume their natural functions.

"I have directed," says Dr. Hamilton, "a strict attention to this practice for a long time, and am now thoroughly persuaded, that the full and free evacuation of the bowels, relieves the oppression of the stomach, cleanses the loaded and parched tongue, and mitigates thirst, restlessness, and heat of surface; and that thus the latter and more formidable impression on the nervous system is prevented, recovery more certainly and speedily promoted, and the danger of relapsing into fever much diminished." He furthermore informs us, that "he is disposed to refer the superior utility of purgative medicines in typhus fever, to the circumstance of their operating throughout the whole extent of the intestinal canal; to their acting upon an organ, the healthy functions of which are essential to recovery, in a manner that is consonant to the course of nature, by propelling its contents from above downwards." "Enemata, whose effects are confined to the rectum, must be altogether inadequate to procure the full evacuation which the circumstances of the case require. It will be noticed, that the practice is intended to be consided only as applicable to the latter stages of typhus fever. In

its commencement, when vascular action is considerable, free purging with brisk agents is necessary, not only for the purpose of unloading the bowels of their irritating contents, but also for the more important purpose of their depleting effects on the blood-vessels.

Dr. Armstrong confirms this view. "Purgatives," says he, "seems beneficial by unloading the intestines of fœces and excrementitious matter, which when retained, excite and keep up much general irritation. But is it not exceedingly probable, that they have another and far more salutary effect in restoring healthy secretion, and in diverting irregular determinations of blood from the head, liver, and other parts? The full operation of aperients sometimes corrects an unnatural heat of the skin, or a morbid state of the pulse, almost as effectually as the affusion of cold water or venesection; consequences which surely indicate that the action extends further than the mere removal of fœcal matter from the intestinal canal." The doctor does not seem to have considered, that the inconveniences named, might all have been produced by intestinal irritation, and its removal of course would procure the retirement of its effects. He adds, "I believe that purgatives are also beneficial, by preventing through their operation, the absorption of the morbid secretions and excrementitious matters of the intestines; for when these have been allowed to be retained in typhus, I have generally observed a considerable increase of irritation, with an offensive odor from the lungs and from the skin; and on the contrary, when the morbid secretions and excrementitious matters have been regularly evacuated, there has been mostly a diminution of irritation, with an absence of the peculiar odour."

Much judgment is necessary in making our selection of the proper article for purging usefully in typhus fever. In the commencement, calomel—or calomel and jalap—or calomel with jalap and aloes—neutral salts, or infusion of senna—or

senna and salts combined, may be employed. These should be used with decision in the beginning; afterwards half a grain of calomel, with one grain or less of ipecacuanha every morning and evening, with a continued use of rheum and serpentaria.

In exanthematous fevers, cathartics are very useful remedies; so long as it is proper to keep in subjection the excitement of the skin; and it is unquestionably a morbid excitement of the skin which constitutes these diseases. As cold air, tepid bathing, and ablutions act kindly in such affections, so also do cathartics, with this difference—ablutions moderate and improve the excitement of the skin; cathartics only procure a reduction of the action. The one therefore cannot be a proper substitute for the other. Cathartics determine the circulation upon the intestines, and effect a simultaneous diminution of the action of the skin—the converse of which is produced by sudorifics, and therefore by the proper use and alteration of these two modes of treatment, we may manage exanthematous diseases, not always however without blood-letting.

In scarlatina simplex and scarlatina anginosa, purges are useful. Drs. Hamilton and Armstrong, have added their testimony in favor of this practice, which is now pretty generally adopted. In these affections, it is necessary in the beginning to produce brisk and copious evacuation. Dr. Armstrong recommends sulphate of magnesia with tart. antimony, so as to produce rapid purging and vomiting. The system may be in plethoric condition, with tendency to irritation, and escape observation. Such is the state of things often in the commencement of catarrh. On letting blood freely, the morbid condition may seem to be corrected. If however, the intestines shall need evacuation; if an appropriate cathartic should be required, and be overlooked, and the patient expose himself to the weather—in consequence of the debility of the capillaries of the skin, produced by the bleed-

ing, a constriction will follow—the circulation will be brought again into a state of stress, and an irritation will as certainly be the result, as if the blood-letting had not been performed; indeed the secondary irritation may be more serious than the first.

This will always be found a very proper, and sometimes necessary practice. After the disease shall have had any standing, so as materially to affect the vitality of the skin, blood-letting is inadmissible, and strong and brisk purging are in like manner to be avoided. We have used reiterated small doses of calomel and ipecacuanha, in all cases of scarlatina anginosa, after the disease has progressed till the throat is considerably sore, and the tongue and fauces are much coated with sordes; paying attention to the skin, according to the views submitted in the chapter on emetics.

In erysipilas, ordinarily, purges are useful, but it is emphatically important in this affection, to have regard to the state of the stomach and intestines, and take special care to guard against a collapse of the skin, and an introversion of the excitement. To use a vulgar explanation, we must take care that the disease does not turn in upon the bowels, which it often has a very great tendency to do. We explain this by considering the patient to have been in a state of debility before the attack—produced by the agency of cold, upon a temperament favorable for the production of erysipelas. The eruption is consequent on an imperfect attempt at a recovery of the excitement of the skin. To deplete therefore, under some circumstances, would produce a dangerous collapse. After it shall have produced general irritation, and a consequent reaction determined to the head, then blood-letting is an appropriate remedy.

In dysentery, most decidedly cathartics are beneficial. If the disease be consequent on the detention of fœculent matter, it is obvious that this must be removed. If it be the result of venous congestion, evacuation from the bowels is

equally necessary. The disease implies an irritated condition of the bowels—all irritating agents therefore must be speedily removed. It is important also, that we should be careful to make a judicious selection of the article with which we propose to accomplish our intention. In the commencement something which shall act decisively and freely; afterwards, castor oil, or sulphate of magnesia, and if necessary, these alternated with calomel, or calomel and ipecacuanha combined, according to circumstances. But in a majority of cases, after decisive depletion by blood-letting, when admissible, and a suitable cathartic once or twice administered, a good dose of castor oil, with ten, or fifteen, or twenty drops of laudanum may be employed as often as the tormina and tenesmus recur. And with a proper attention to the skin, this treatment may be relied on for a cure.

CHAPTER VII.

CATHARTICS—CONTINUED.

Cathartics are valuable in the treatment of puerperal fever and peritonitis. In affections of this sort, brisk purging in the onset, very often, will be found effectually to arrest their their further progress. If the attack be acute, the most decisive blood-letting will always be indispensable; afterwards, cathartics suitably adjusted to the demands of the case, with cupping and leeching, will constitute the principal remediate measures, and upon which we most rely. Our observations have led us to believe, that in the fever most commonly met in childbed, the peritoneal coat nf the intestines, is more frequently concerned than the uterus. As in other instances of inflammatory affectines of the intestines, there is a general soreness of the abdomen, and in very bad cases, the abdomen becomes tumid and hard. Constipation also often obtains to a very alarming degree. Therefore, after blood-letting, when necessary, brisk cathartics ought to be administered, and they will be more or less beneficial, according to their activity. Sometimes there is difficulty in effecting catharsis, so great as to require strong doses of calomel and jalap, which ought to be fearlessly administered, whenever necessary. There have existed very great errors in the opinions of physicians upon this subject. Drs. Abercrombie and Broussais, must have been in error when they wrote against the use of cathartics in peritoneal inflammations. Broussais says, they are hurtful, because the vermicular contractions which they excite in the intestines, must increase the mor-

bid sensibility of the peritoneum. In abdominal inflammation, provided the mucus tissues are not inflamed, cathartics excite the secreting vessels, and that not only of the whole external surface of the intestines themselves, but also of the glandular organs, whose excretory ducts open into the primæ viæ; and by the most direct channel within the reach of art, deplete the vascular portion of the abdominal viscera. When the intestines are inflamed, the peritoneal covering which is reflected over them, will of course be more or less implicated. However much this may be the case, if the villous coat of the intestines remain unaffected, the alimentary canal will commonly be found in a condition, which uniformly demands the aid of cathartic remedies, and the most direct possible way to relieve the peritoneum, is to evacuate the congested vessels of the abdominal viscera. To excite the mucous membrane therefore, will as certainly relieve the peritoneal inflammation, as a free expectoration from the mucous membrane of the lungs, will relieve the vascular turgescence and inflammation of the parenchymatous structure or pleural covering of that organ. It may be proper, however, before we dismiss this subject, to observe, that in some instances of great prostration in childbed, the intestines may be in a condition which will require much care and management, especially when worn down by long continued diarrhœa. It may be necessary to use small doses of calomel and opium, to be aided by occasional doses of castor oil; infusions of senna, with or without the addition of a little sulphate of magnesia; epispastics, external warmth, semicupium with vinegar; sinapisms, the vapor bath, &c.

Cathartics properly belong to the class of antiphlogistic medicines, and therefore there are very numerous instances of inflammatory disease, in which they are useful. In pleurisies they are of less importance, and sometimes become injurious. In these affections we rely chiefly on blood-letting. But in rheumatism they are generally useful. Dr.

Scudamore, in his treatise on the nature and cure of gout and rheumatism, says, that the advantage of making a detraction from the general circulation, by the channel of the alimentary canal, is no less remarkable in rheumatism, than in every other inflammatory disease. In proportion as we pursue this practice from day to day, we obtain its effect in acute rheumatism; the circulation becomes moderated; the inflammatory diathesis subdued; and the absorbent system is excited to increased action." This statement accords with our own experience. The true reason why the use of cathartics ever became doubtful has been, that they have been used too sparingly. By pressing the system hard with reiterated purging, "we promote the removal of excessive secretions of the synovial membranes, which causes the distention and impedes the motion of the parts affected. Saline purgatives administered in small doses, and repeated at intervals, are the most advantageous." This last is a correct view of the practice in cases of long standing, in which the system is worn down to a state of debility. In the early stages one or two blood-lettings may be employed, and when by the reiterated use of gentle cathartics, we keep down the inflammatory action; and we excite the absorbent system, when sufficiently reduced, to obey a treatment less powerful in its effect. It may be remembered however, that it is important in the cure of rheumatism, to have special regard to the state of the skin. All the different unguents, liniments and opodeldocs, have obtained their reputation chiefly because, either the friction necessary to make the application, or the irritating qualities of them, or both conjoined, or the necessity of making the application before a hot fire, or under the influence of a hot shovel, have served to keep up the excitement of the skin. Sinapisms and epispastics are permanently useful, then only, when they make an impression on the skin, which ensures a permanent excitement of its vessels, so as to maintain its functions. In view of this im-

portant consideration, we conduct the use of cathartics in rheumatism. After depletion shall have been carried to a certain extent, the skin will be in danger of losing its excitement. When we arrive at this stage, we must be careful as to the quantity of blood to be drawn, and also as to the power of the cathartics to be used. It is equally important not to repeat either, until the system reports itself in readiness for permanant reaction. Aided by a proper use of heat, sinapisms, frictions and blisters, so as to compel the skin to keep time with our depletions, we can bleed as often and give as many cathartics in six days, as can safely be done in nine without the necessary attention to the skin.

Very nearly the same practice, and all its discretions are equally appropriate in the treatment of gout. Whatever be the real nature of this painful disease, we are of the opinion, that there is always some organic disease, some functional derangement of the liver and portal system of vessels. This is also the opinion of Dr. Scudamore. Admitting this, there can be no doubt respecting the beneficial effects of purging in gout. This practice is also recommended by Dr. Sutton. The experience of the faculty in relation to gout, has led to the adoption of a practice in full accordance with the discretions which we have submitted in relation to rheumatism. Dr. Scudamore informs us that "he invariably employed, with the greatest advantage, purgative and diuretic medicines conjointly; so that the exhalent vessels of the alimentary canal, and the secreting function of the kidneys, are stimulated to increased action at the same time." Such a union of purgatives and diuretics, is particularly serviceable in those cases that are attended with dropsical effusions in the extremities. In any such case, and indeed in all cases of gout, regard ought to be had in a very particular manner, to the general temperament of the patient, and also to any organic temperament which may obtain in the case, especially to the habitual state of the patient's skin. And if he have been ac-

customed to a constant moisture of the surface, every suitable measure must be adopted to insure the concurrence of the skin, in the train of arrangements which enter into the plan of treatment. It will of course be seen, that sometimes it may be necessary to unite diuretics, cathartics, and diaphoretic medicines, in order to do ample justice to a gouty patient.

In hydrocephalus internus, cathartic medicines are indispensable. Physicians of late years seem to have to a pretty general consent of opinion, that the symptoms ordinarily attendant upon hydrocephalus are often consequent on gastric irritation. The disease in such cases, first evinces its approach by great disturbance of the stomach and bowels, and the "alvine discharges afford unequivocal proof of great functional disorder of the liver. They commonly consist of large quantities of black or green or glary bile, and are seldom if ever found to exhibit the appearance of natural and healthy evacuations. Dr. Cheyne, in his post mortem examinations, found in the liver, the remains of great inflammatory action, with appearances proving that undue irritation had existed in the alimentary canal. Mr. Abernethy also found the brain of a child, that had died of what were considered unequivocal symptoms of hydrocephalus, to be perfectly healthy; the only disease being in the bowels. Dr. Cheyne mentions a very remarkable case of a girl, who complaining in the evening of a headache, was put to bed by her mother and soon fell asleep; next day at noon she was still sleeping, respiring fully and slowly, with now and then a heavy sigh: the eyes were fixed, the pupils large and immoveable. She had been very costive for some days previous, and was languid: she was ordered an enema and this roused her, so as to swallow a bolus of jalap and calomel, which operated powerfully and brought away two chamber pots full of the most extraordinary collection of fœces the Doctor ever saw. This patient recovered immediately. In accordance with the

opinion which this case is intended to inculcate, cholera infantum very often terminates in unequivocal symptoms of hydrocephalus acutus. We have often seen very alarming appearances, such as indicate danger to the head, corrected immediately by a plentiful catharsis; and sometimes by the administration of a simple enema. According to our observation, a great proportion of children are over-fed. Their brains are greatly irritable, and a fever which in reality has its origin in a morbid condition of the viscera, will be found seriously to affect the head. There would be no hazard, therefore, in believing that nearly all the instances of this disease, which are not produced by falls or some other known injury done to the head, are primarily diseases of the viscera; and that the injury sustained by the sensorium, is superinduced by the violence and continuance of the fever. But whether the disease be idiopathic or secondary, purging is equally necessary in both. The propriety of cathartics is most obvious when the disease is dependent on an irritation of the intestines, as in such cases, they tend at once to remove the cause of irritation, and by producing a determination of the fluids to the intestines, diminish the quantity which would otherwise have been determined on the brain. The bowels, therefore, ought to be actively moved, in every case where the symptoms indicative of hydrocephalus are found to supervene. Dr. Cheyne, in his essay on the diseases of children, says: "Should we ascertain, that the alimentary canal is torpid and imperfectly performing its functions, admitting an accumulation of fœculent matter, or that the secretions flowing into it, are vitiated or diminished in quantity, which we discover by the peculiarity in the appearance, or by the pungent fœtor of the stools, we must, by steadily pursuing the purgative plan, endeavor to effect a change in the hepatic system, the alimentary canal, and all the parts, including every organ essential to life, which is connected with them." This is in perfect accordance with

the experience of every judicious physician in this country. If the facts and arguments adduced, in proof of the propriety of purging decisively in hydrocephalus, be admitted; if cathartics determine the circulation from the head and remove the causes of intestinal irritation, it must be obvious, that they will likewise be useful in apoplexy; and for the same reasons;—with a view to diminish the afflux of blood to the head and direct it upon the intestines and other abdominal viscera; and the more decisive the purges, the more beneficial will be their operation.

Hypochondriasis is produced by a diseased state of the chylopoietic viscera. It is the ordinary course of it, first to take on the symptoms of dyspepsia; the appetite is either morbidly increased or diminished; a distressing sense of fullness is experienced in the stomach, with fœtid belchings; white tongue; obstinate constipation; and headache. These are unequivocal evidences of visceral disease; yet in this affection, brisk purging does not produce a good effect. Ordinarily, the viscera are in a state of too great debility, to endure drastic purges. We have thought that most cases of this sort, are consequent on a state of things, approximating to schirrus. If the evacuations be too considerable, therefore, they will serve only to increase debility; inasmuch as the vessels are not prepared to keep time with the depletion. The kind of practice which the experience of the profession has led them to adopt, is the frequent and almost daily use of laxatives. By gently exciting the bowels in this way, we in some sort, substitute the natural intestinal and hepatic secretions, and counteract the torpor which in this disease prevails in the portal circulation. To accomplish this, we unite purgative articles with mild bitter tonics, and give them, so as to procure one or two good evacuations in the course of twenty-four hours. When the disease is of long standing, there is often the most remarkable constipation; of course an amazing quantity of fœculent matter is accumulated and

impacted in the lower bowels. This must have a tendency to keep up and increase irritation, and what is particularly remarkable, purgatives do not remove it. When it is detected, in such cases, it is the practice to use mild but copious injections.

The whole of this practice is merely palliative. Every such patient needs remedies which have a tendency to cure the visceral disease which lies at the root of the evil. He should be treated with the utmost respect, and be made fully to understand that he is laboring under a disease which requires steady and long continued attention. We use a pill of calomel and ipecacuanha, in association, or in alternation with laxative bitters, and repeat it as often, and continue to use it as long as possible so as not to induce salivation. Whenever ptyalism is threatened, we withdraw the pill and trust the bitters without it for a week or two, and then again resume the pill. If it too readily induce a salivation, we substitute for it the blue pill, and follow the same plan. If a cure be practicable, it will be accomplished.

Hysteria is also, more or less, the effect of diseased viscera. Its most prominent symptoms are, wandering pain in the abdomen, flatulence and fœtid evacuations, with constipation—the certain indications of disorder in the functions of the viscera. This is also the opinion of Dr. Hamilton, who says "these symptoms afford conclusive evidence, that the gastric affection is primary, and that the other multifarious symptoms of hysteria, depend on it. We have therefore thought it reasonable, to attend particularly to the state of the stomach and intestines, and to employ in the first place, purgative medicines, to remove the constipation which most commonly prevails in hysteria." In this disease, however, much more decisive purging is necessary than is proper in hypochondriasis; and it is found beneficial to unite purging medicines with the fœtid gums. Assafœtida is commonly preferred. There is a striking fact which has been noticed by Dr. Ham-

ilton and others; that the first purgatives seem on some occasions to aggravate the symptoms. In a case of that sort, it will require address to insure the necessary repetition, and the practice must not be deserted on that account. The distress which the first dose gives, is owing to the inconvenience of relaxation, and corresponds to the uncomfortable sensations which those females feel, who are accustomed to tight lacing, when on any account they lay off their corsets. By perseverance in the use of cathartics, the intestinal vessels will be evacuated, and their natural sensation will be restored. After a brisk purge or two, we use small doses of calomel and ipecacuanha for a few days. If the pulse rise under the agency of this preparation, we let blood, repeat the cathartic and then recur to the pill of calomel and ipecacuanha, made in the proportion of about one-fifth of a grain each. So soon as the patient becomes too susceptible of the mercurial influence to bear this combination, we have recourse to the blue pill, in small portions, and continue one, two, or three per day.

Dr. Hamilton is the first physician who directed the attention of the profession to the use of purgative medicines in treating chorea sancti viti. This disease is thought to be often dependent on gastric irritation or great fœcal accumulation in the lower intestines; and of course, whenever such a state of things exists, purges in decisive doses, must unquestionably be of very great utility. This practice is sustained by very considerable authority, as Sydenham, De Haen and Stahl. Dr. Hamilton divides the disease into two stages—the first includes all the time, so long as the intestines retain their sensibility, and before the accumulation of fœces is great. During this stage, he thinks that gentle purges, repeated as occasion may require, will effect a cure, or more properly prevent a full formation of the disease. In the second, which is, when the disease has become confirmed, a more careful attention will be required. Powerful doses

ought to be given in pretty quick succession, at intervals so short, that the latter dose may support the effect of the former, until the expulsion of the accumulated matter shall have been effected. But in order to gain permanent advantage by the practice, it must be pursued in a suitably decisive manner. "Half measures," says Dr. Hamilton, "in instances of this kind, will surely prove unsuccessful."

But chorea does not always depend upon causes seated in the viscera of the abdomen; and therefore we find it will not yield to the most complete and efficient course of purgative treatment. Indeed, there are frequent instances in which evacuation serves obviously to aggravate the disease. All such, will be relieved most effectually by the use of the mineral solution of Fowler, cuprum ammoniacum, iodine or moxa applied to the spine. There can be no considerable hazard in testing first the effect of Dr. Hamilton's plan, which probably in a majority of instances is the most rational method of treating the disease.

In marasmus, purging is the only useful remedy. This disease is unquestionably connected with derangement of the digestive organs. We are informed by Dr. Hamilton, that during the first stage, which extends from its commencement to the accession of the hectic state, it may be cured by mild purgatives. During this first stage, the bowels are not altogether torpid, nor are they overloaded with accumulated fœces. But after the disease has advanced into the second, which is the febrile stage, more active medicines are required, which must be regularly and perseveringly employed. Dr. Hamilton recommends the exhibition of small, but frequently repeated doses of cathartic medicine, so administered, that the latter dose may support the effect of the former or preceding ones. When the bowels are once opened, then stronger doses, given at longer intervals, will accomplish the cure.

He also recommends the use of purgatives in the treatment of chlorosis. "The slightest attention to the history of the

disease," he says, "evinces, that costiveness precedes and accompanies the other symptoms. Costiveness induces the fœculent odor of the breath, the disordered stomach, depraved appetite, and impaired digestion. These preclude a sufficient supply of nourishment, at a period of growth when it is most wanted; hence paleness, laxity, flaccidity, the nervous symptoms, the wasting of the muscles, languor, debility, the retention of the menses, the suspension of the other secretions, serous effusions, dropsy and death." Inasmuch as all these phenomena are the effects of costiveness—suppose we inquire what state of things produces the constipation? No doubt, a diseased state of the skin and portal circle. The ordinary method of treating patients of this description, has been to administer tonics, such as iron, wine, bitters, &c. There must be good constitutions, when cases of this nature are cured by such treatment. Our experience goes to sustain the opinion and practice of Dr. Hamilton, as to the use of cathartic remedies. His practice is correct, though he does not look sufficiently deep into the cause of the disease. In cases of this affection, we associate the pill of calomel and ipecacuanha with the use of tonics, if there be any need for their use. The pill should be continued so long as any visceral disease remains.

Some females are liable to a vomiting of blood, an affection which occurs from the age of eighteen to thirty. The attack is preceded by languor, and oppression about the chest, and a sense of fullness of the precordia; hiccough, dyspnœa, and sometimes pain in the chest, loss of appetite, headache, vertigo, disturbed sleep; the eye is dull, countenance expressive of distress, pulse feeble, bowels constipated—these are the precursors of the hemorrhage; and these indicate a fullness of the liver from which the blood in such cases, is discharged. The treatment of course is the same as the preceding.

No class of medicinal agents admits of more extensive use than that of cathartics, in almost every disease and in every

part of the known world. Hence it is, that so large a traffic in pills, under such an endless variety of names, is carried on in Europe and America. Like all other useful things, it is often abused. Yet so many find temporary relief and comfort, that the injury done by an injudicious or an ill-timed employment of a remedy so universally popular, is seldom ascribed to its true cause. It would be a valuable service, if the dangers which follow its abuse, could be made sufficiently obvious to secure the necessary caution. This, however, will be a hard task, and the more so in this country, when there is such an abundant supply of food, and such prevailing inclination to indulgence.

Those who take great delight in the luxuries of the table, so often need the aid of pills, and are so frequently prepared by their use, to return to their "chief joy," that next to the pleasures of eating, are the supposed means of sustaining their ability to eat.

It is a customary thing for epicures, when their health and ability to eat and drink with their usual relish begin to fail, to visit the springs. The waters are sufficiently medicated, when taken in liberal quantities, to act freely on the bowels, without restraining the appetite for food. The invalid finds that he can eat with great satisfaction, and by means of a speedy evacuation be ready to repeat his meals more frequently and indulge more freely than when in health; and if the evacuations are frequent and free enough to convey away a sufficient portion of the chyle, before the lacteals can have time to absorb too much, the waters will probably prove really beneficial; for on this point alone the issue turns, whether for benefit or injury. In managing the cases of invalids of this description, we have the greatest difficulty in respect to diet. They cannot govern their appetites. Hence the best concerted plans are so frequently defeated. In treating a case of this kind, therefore, we should never expect a rigid regard to prescribed abstemiousness, but adopt

measures which will insure the intention without much self-denial. We should associate with the intended medicament, the daily use of Bedford or Saratoga water, or some artificial substitute, to an extent sufficient to imitate the effect of a residence at the springs. We often administer to our patients, whose livers and other important viscera have been a long time sore and languid, one, two or three doses, a day, of calomel and ipecacuanha, of each, one-fifth of a grain, and associate with this minima pill, frequent repetitions of drachm doses of Epsom or Rochelle salt, sufficiently diluted, so as to secure at least two evacuations every afternoon. The pill will produce the alterative effect, if the system be sufficiently deprived of its nourishment, and the salts, diluted with ale and water or ginger tea, or water only, may be used to substitute the water from the springs. Although the patient may be thus indulged, the evacuation of the food so as to rob him of his chyle, will serve to put the absorbents in a state of requisition, and any existing enlargement or induration of the diseased viscus, will be retired.

CHAPTER VIII.

DIAPHORETICS.

Medicines which increase the natural transpiration by the exhalents of the cuticular surface, we denominate diaphoretics. When they act so extensively and effectually, as to produce sweating, we call them sudorifics; the term diaphoretics is usually associated with such articles as serve more particularly to increase the sensible perspiration.

Much has been written on the subject of obstructed perspiration; and the latest and best works, have advanced so far only, as to make the distinction which regards "opposite states of the system." They have learned that obstructed perspiration "may depend on, or be connected with a high febrile action," and also, on a "slow and languid circulation." This is a considerable step towards the true philosophy of diaphoretics, but it falls short of affording all the instruction necessary to guide the young physician, in his remedial treatment in respect to the skin. It is useful to know, that remedies which are calculated to restore this function when its defect or loss is associated with high vascular action, must be very different from those, which are calculated to excite it when in an opposite state." That, in the former case, our diaphoretics must be such as have a direct tendency to lessen the action of the heart and arteries, and at the same time promote the action of the transpiratory vessels. That cold ablutions, refrigerants, antimonials and blood-letting, are very often directly and manifestly diaphoretic; and when a deficiency of this function is accompanied by a languid cir-

culation, and a pale, shrivelled, or cold skin, that recourse must be had to diaphoretics of a stimulating character.

These general principles have served as imperfect guides in the employment of diaphoretics, and are nearly in consent with the physiology and pathology which we have adopted in view of the skin.

After all that has been done thus far, we still have to inquire, what is meant by an obstructed perspiration? and what is expected to be accomplished by its restoration? If the excitement of the skin be partially suspended, for a short time only, the system being in ordinary good health, reaction will be speedy and agreeable, accompanied by a pleasant moisture of the skin. This position is exemplified and confirmed by what occurs on using the shower bath; or on stepping about a few minutes, without any clothing, in the open air. In either case, after being dressed, reaction and slight perspiration immediately follow. So also in winter, after exposure for a considerable length of time, by the aid of fire in the usual way, a similar state of things readily occurs. For this alternation of suspension and reaction of excitement, the skin seems to have been particularly and emphatically destined. A suspension of the circulation, such as is produced by exposure to cold, when it befalls a person in good health, at first induces a stricture of the capillaries of the skin. This stricture is consequent on an accumulation of vitality. When the capillaries of the skin are filled with blood, the excitement which includes the circulation and concomitance of all its functions, gives full employment for all the vital influences pertaining to that structure. Where a sedative power abates the excitement of the capillaries, the unemployed sensorial influence fastens on the fibre of the vessels emptied of their fluids, producing the spastic condition observed by Cullen, which we take the liberty to designate by the term stricture, to distinguish it from the condition

consequent on the evanescence of the sensorial influence, when the capillaries fall into a state of collapse. If the exposure be too long continued, the stricture will retire, and the skin will become collapsed by reason of such evanescence of its vitality. We stated in our elements, that the suspension of excitement is accompanied, through a limited period, by a corresponding accumulation of sensorial influence, and that when there is an ordinary degree of vigor, this accumulation will eventually induce a spontaneous reaction. If circumstances be favorable in regard to time, temperature, &c., the reaction will be limited mainly to an increased excitement of the skin. If circumstances thus favorable to an adjustment, through the medium of the skin, do not concur in time, and a stricture takes place on the surface, the reaction may be directed to other determinations; it may produce a more general effort, and excite the heart and arteries. If then the pulmonary vessels be overstrained by this effort, it may produce an instance of pulmonitis. If the abdominal vessels give way, we will have enteritis. If the blood-vessels of all the viscera maintain their integrity, after a struggle sufficient to expend the accumulated sensorial influence, eventually the excitement of the skin will be restored, and a free perspiration follows in the train. But all these statements are made in view of a healthful condition of the viscera.

When the circulation of the cuticular surface is suspended, the blood must find place in a distention of the vessels of the abdominal and other viscera. A diurnal influx and reflux from the cuticular surface of the viscera, if not strictly natural, is universally habitual, and justifies the conclusion, that the blood-vessels of the abdominal viscera, are prepared by a suitable organism, to admit of the influx, and suffer it for a certain length of time without injury. This occurs under ordinary circumstances during the night, and if not too much exposed to cold when we sleep, or if not too long ex-

posed to cold or wet weather at any one time, or if not too frequently repeated. Each instance of influx or introversion, will be spontaneously corrected by the reflux or reaction, which, on the return of morning, upon taking exercise or refreshment, or on returning to the fire after exposure, is continually experienced by persons in ordinary good health. If this spontaneous reaction should not take place in the usual manner, and the blood be thus accumulated, and too long delayed in the vessels of the abdominal viscera, a stricture of the cutaneous blood-vessels will be an inevitable consequence, which will be accompanied with head-ache, chilliness, listlessness, stiffness of the limbs, and sometimes with nausea, thirst and wandering pains. In every such instance, it is necessary to have a proper regard to the state of the viscera, in making an estimate as to the probability of a spontaneous reaction of the cutaneous vessels. If the general circulation be not materially impeded by plethora, and no one viscus is in a state of congestion, bathing the patient's feet in hot water, giving him a cup or two of hot tea, and covering him warmly in bed, will be effectual in correcting the stricture, and in re-establishing the cutaneous circulation, that is, "restoring the circulation."

In any instance, however, in which there is considerable plethora, or the blood-vessels of the viscera have been in a state of distention until their tone is too much impaired to consent with the arrangement intended to favor centrifugal action, or when any one of the viscera is in a state of congestion, neither pediluvium, nor hot drinks, nor retiring to bed, nor the agency of any stimulating or diaphoretic medicine, will be efficacious in correcting the stricture. In consequence of the plethora, the blood is not in a state of complete assimilation; it is deficient in respect to all the influences derived from a free circulation through the lungs and skin. A considerable portion of effete matter is retained in

consequence of its languid circulation through the secreting organs, causing these also to languish. Moreover, because of the imperfect state of the blood, the condition of the sensorium, the nerves, and all the viscera is continually growing worse. In every such case the system must be released from its thraldom by the necessary depletion, before any diaphoretic agent can be made to take effect. But after the necessary blood-letting and purging, in a majority of instances, any agreeable stimulant drink, if taken in sufficient quantity, will be followed by a pleasant diaphoresis. Under such circumstances, the heart and arteries readily command the remaining volume of fluids; the viscera, lightened of their excessive load, perform their functions well; the blood again becomes charged with its vivifying principles, and is propelled freely to the surface; and if the correction be made in time, the skin by its sui generis action will admit, and circulate its portion, which will be evinced by a return of perspiration. If the case have been attended with some delay, in addition to the requisite depletion, it may be necessary to make appropriate application of external heat, and administer internally some diaphoretic agent, calculated to favor a determination of the circulation to the capillary vessels of the skin, without materially augmenting the action of the heart and arteries. In instances of this sort, we procure the most perfect exhibitions of diaphoresis.

When the cutaneous vessels have been long in a state nearly destitute of circulation, such as subjects the nerves to a condition approximating to torpor, which is always accompanied by a collapsed state of the skin, there will be much additional difficulty. Some congestion of the viscera will be found to have previously existed, so long, that the blood will be more or less deteriorated. There will be found to exist a corresponding degree of general debility, such as for the time will forbid blood-letting, or much depletion in any

way. In such a case, a potent stimulant would probably endanger the congested viscus, and a mild diaphoretic would not be sufficient to recover the circulation of the cutaneous vessels. There will be occasion therefore, to employ a train of preparatory measures. The bowels must be evacuated according to the strength of the patient, external heat must be used in a manner having respect to the time of continuance, which will probably be required to accomplish the intention; then some appropriate diaphoretic drink must be administered, as an infusion of Serpentaria Virginiana, &c. adding when necessary, spiritus mendreri, wine whey, &c. &c.*

By this treatment, it is probable, that a part of the excess of blood detained in the veins of the viscera, will be transferred into the arteries, and may possibly produce a degree of tone in the arterial action, which should be corrected by blood-letting; and this is always a favorable occurrence whenever it takes place, inasmuch as it reports an improvement in the condition of the veins, and of the nerves dependent on the circulation through the capillary vessels of the surface.

If this occurrence should take place whilst the patient is under the influence of diaphoretic remedies, or at any time after the intention may be considered to have been accomplished, it is as necessary to correct the tension of the arterial action by depletion, as if no appearance of debility had occurred in the first instance. A condition of things corresponding to that which is presented in an instance of this kind sometimes occurs spontaneously.

An elderly lady, say fifty years of age, who had for a long time been subject to cough, without appetite for food, having head-ache, some unnatural thirst, confined bowels, and a good deal of the time being unable to sit up long at once, having

* The foregoing paragraph describes the condition of the system when predisposed for an attack of typhoid fever.

occasionally made use of gentle laxatives, at considerable intervals; at length, rather unexpectedly, felt so much better that in the evening of the same day, after having sent for us in the morning, she declined any medical attention, believing she was so much improved as to need no prescription. She was sitting up, but there was a livid paleness of complection, and a peculiar feebleness of the arterial action, without frequency or discoverable tension, which led us to apprehend that she would be disappointed. We were the more apprehensive, because her respiration was somewhat restricted, although an attempt at a full respiration gave no sensible inconvenience. We did not think her convalescent, but were informed that if things should not progress agreeably to her expectation, she would let us hear from her. The following day, she still considered herself to be doing well, having had, on the whole, an agreeable night. The second day she was disposed to take nourishment, but whilst in the act of eating dinner, was suddenly taken with a violent chill, like the onset of pneumonitis, followed very quickly by an excruciating pain in the breast, great difficulty in breathing, insatiate thirst, &c. Being sent for in haste, we reached her in the evening and found her very ill. Her case was now obviously inflammatory, requiring blood-letting, which was repeated daily for two days, in each instance affording great comfort. When the violence of the inflammatory action was subdued, the case was marked with considerable debility, on account of which, after each blood-letting, heated bricks wrapped in napkins and moistened with vinegar, were applied to her feet and knees; and several times exchanged, so as to maintain the temperature ten or twelve hours. After the first bleeding, a large epispastic, ten by twelve inches, was applied over the epigastric and hypochondriac regions—spiritus mendereri and oxymell of squill were administered through the day, to which were added a little camphorated tincture

of opium, and nitrous ether, through the night. The case progressed very comfortably, but the disposition to phthisis, pulmonalis still prevailed without improvement.

Had there been less sensorial activity in this case, the inflammatory attack could not have occurred. Similar appearances in autumn, and with sound lungs, probably would have eventuated in fever. It was winter; and although the circulation of the cutaneous blood-vessels was languid, the sensorial influence was gradually accumulated, until the system was charged for a spontaneous reaction.—In the mean time, the stricture of the cutaneous vessels, which were bordering on the state of collapse, prevented a free and general distribution of the circulation, in consequence of which, the pulmonary arteries were subjected to a very alarming morbid action.

In collating this case with those in which apparent debility under the influence of a stimulant diaphoretic treatment, is abruptly followed by inflammatory appearances, it is necessary to invite attention to the following particulars. The accumulated and apparent latent vitality in the case referred to above, is roused by means of artificial excitants, made the more stimulant by the concomitant employment of heat. In this case a similar accumulation existed, and was permitted to progress, till the natural or ordinary stimuli were sufficient to rouse the system to a spontaneous reaction, so strong as to produce violent symptoms like pulmonitis. It is not a common occurrence, that the system, when fallen into the state of a collapsed surface, will be so roused by a course of diaphoretic management, as to require blood-letting. Cases like that just now described, are also rare; whenever either of the circumstances does occur, it will be found useful to treat the patient according to the plan of practice above stated. When cases become chronic, and especially when some organic disorder has taken place, and when it has become ne-

cessary to introduce an alterative plan of treatment, a healthy condition of the cuticular surface cannot be hastily established—in fact too great an effort to establish it hastily, at any one time might prove injurious.

"Diaphoretics," says Dr. Eberle, "may act by relaxing the mouths of the perspiratory vessels, or by increasing their activity, or by establishing their increased activity, or by effecting an increased flow of blood into them, or by producing these two last mentioned effects simultaneously." When the blood has been for some time turned too heavily upon the viscera, and has become deteriorated, not only by reason of the imperfect performance of the functions of the organs which have been thus overcharged, but also by the detention of the morbific particles, which ought to have been thrown out by perspiration, it is very obvious, that in addition to the restoration of the excitement of the skin, it is necessary that a state of perspiration should be kept up for some time. In cases of established fever, such as require much depletion, it has been customary for the physician to be satisfied with the diaphoretic effects of antimony; on the supposition that much advantage is gained from the evaporation of the morbid heat, which is a considerable source of irritation.

Sudorifics have been among the earliest and most common remedies in every nation. But valuable as they are, and extensively as they have been used, there is perhaps no other class of medicines, which has been so often abused in the treatment of sickness. Van Helmont and his followers who believed that the most acute diseases were cured by expelling some morbific matter, after "its proper concoction," employed the most stimulating sudorifics, together with high temperature in every grade of febrile exacerbation. This practice appears to have prevailed during the seventeenth, and the early part of the eighteenth century; and it is easy to perceive, that its effects must very frequently have been

pernicious. More than one hundred years ago, a certain German physician made use of an apparatus for applying heated air by means of ignited alcohol. He used it exclusively, however, for the cure of syphilis. For several days he poured in enormous quantities of guiacum, &c., and then applied the heated air to sweat out the fluid, and with it the syphilitic virus. His practice was altogether empyrical, and would now be justly considered unworthy of the profession.

But it must not be concealed, that many worthy physicians think the same of the employment of external heat in the treatment of fever. The utility or perniciousness of an attempt to produce a profuse diaphoresis in acute diseases, depends on the means that are used to excite it. The employment of heating or stimulating remedies, internally for this purpose, renders the practice injurious; whereas, if we elicit perspiration by cool applications, or by the use of diaphoretics of the refrigerent kind, we in general derive unequivocal advantage from it.

The opinions generally entertained, in respect to the application of external heat, are greatly erroneous. Facts are stubborn things. We have hundreds of times applied heated air to persons affected with acute disease. But almost in every instance we have found it necessary to prepare the patient for the application of heat by blood-letting, which was often followed by a cathartic. We have used it in pleurisy, catarrh, pulmonitis, dysentery, enteritis, rheumatism, gout, bilious fever, erysipelas, opthalmia, diarrhœa, measles, small pox, and in almost every disease commonly met with in this climate; yet, never have had occasion to consider its effects injurious, when introduced under suitable circumstances.

We have used it in a case of protracted parturition, when the patient was exhausted by struggling for the birth of a dead fœtus, whose cranium was two inches larger than the long diameter of the pelvis. Her pains had ceased through exhaustion. By the instrumentality of our vapor bath, and

a moderate quantity of cordial drink, in the course of an hour she was rallied; her pains returned, she was delivered by means of the crotchet, and had a very favorable convalesence. We have used it with unequivocal advantage in a case of alarming anthrax. The carbuncle was seated midway between the neck and hips, over the spine; and the patient was more than seventy years of age. It was followed by a very natural sloughing, and an exceedingly pleasant recovery.

We have used it in a case of occult character, thought to be the commencement of a bilious fever, the system being in a state of depression. By the agency of heat, the circulation was resuscitated, after which the patient was freely bled, and on the following day there appeared a very satisfactory display of distinct small pox, which progressed with regularity and terminated in health, without leaving the patient offensively marked. We have used it in a case apparently like the one last mentioned, which proved to be measles; and which in like manner was displayed after blood-letting. This case progressed and terminated in a manner equally satisfactory.

In view of the theories which we are endeavoring to communicate, the use of this remedy is entirely philosophical; in fact it corresponds with Dr. Eberle's views. "When the body is exposed to cold," he says, "the circulation in the subcutaneous vessels is immediately and manifestly diminished, both in velocity and volume; and the skin becomes pale, shrunk and cold. As a natural and necessary result of this condition of the circulation on the surface, the blood is repelled to the intestinal vessels, and much of the excrementitious fluids, which nature intends and the welfare of the system requires to be cast off by the skin, is retained in the system. There is, therefore, under these circumstances, a superabundant portion of deteriorated blood forced upon the heart, which acting upon it as a preternatural stimulus, brings on, sooner or later, reaction, or the stage of febrile excite-

ment." The whole of these facts are in accordance with our theory. "Cold," says Dr. Eberle, "obstructs perspiration." Heat, we say, corrects the evil, and restores perspiration. "The subcutaneous circulation," says Dr. E., "is diminished in velocity and volume." Heat, we say, corrects this evil in both respects; the pale skin is made florid; the shrunken skin is filled and expanded; the cold skin is warmed. "The excrementitious fluid," says Dr. Eberle, "is retained, and the blood is deteriorated." Heat, we say, insures a perspiration so copious as to effect the elimination of all offending fluids.

The opinions which we held and published forty years ago on the subject of diaphoretics, we have not materially changed. We then believed that they ought to be used when the intention is to restore excitement to the surface, the system being placed in a condition in which it may safely be subjected to the agency of an artificial stimulant.

When in a state of direct debility, almost any pleasant stimulant, especially if it be aided by the application of external heat, will produce an increase of the capillary action, which will extend its influence throughout the cuticular surface, and of course produce perspiration. A sweat forced upon a system full of blood and of vital energy, may produce morbid effects, and if much fever be present at the time, it must be unsafe; if there be congestions, they may be rendered more extensive and obstinate." Diaphoretic medicines, therefore, ought to be used with great circumspection, with the intention to elevate the excitement of the capillaries of the skin and to establish a new action. If this intention be judiciously conducted in the forming stage of disease, it is frequently effectual in arresting it at once. Very great accuracy of judgment, however, is necessary to guard against mistake. Therefore heavy sweats ought never to be attempted, except by the hand of experience.

In view of the use of internal diaphoretic agents, our experience accords with that of all other experienced physicians.

We have not been able to detect any material error, in their opinions or practice, in respect of these.

Antimony has commonly been considered an important diaphoretic agent. For forty years we have used it, as a remedy requiring special consideration. At the same time that it affects the exhalents of the skin, it very materially checks on the sensorial powers. Hence antimonials are most useful in fever strongly marked with vital energy, and for the same reason, they are always injurious when there is great prostration; when instead of diaphoresis, they are apt to produce colliquative diarrhœa. The moisture brought out by the agency of antimony, is analagous to that which takes place after blood-letting whilst the system is languishing and inclined to fall into the state of deliquium.

The perspiration which takes place towards the close of a paroxysm of intermittent fever, differs from this, especially on its first exacerbations, in which, there is an obvious increase of the excitement of the skin, presenting a state intermediate between the perspiration of the harvest field and that produced by antimony.

The sweat which closes an exacerbation of hectic fever, differs from that of the intermittent. In the hectic, there is no obvious increase of excitement in the skin. It accords more fully with the diaphoresis from antimony, except, that the system is much more exhausted, so that the absorbents for the time, seem to be quite inactive, whilst the exhalents are relaxed, permitting the fluids to run off in great and debilitating quantities.

The diaphoresis which we should attempt to establish in any recent case, and whilst the energies of the system are yet existing in ordinary amount, should differ from all the three above mentioned. It ought as nearly as may be to correspond to the sweat of a healthy laborer—of a blacksmith smiting the heated iron on his anvil. The skin is then excited; its vessels are filled with blood; the respiratory or-

gans are well animated, and they perform their functions in full amount; so that when the system is permitted to rest, it returns to a proper state of orderly quietude, and the disposition to disease disappears.

Any of the former instances of apparent perspiration may take place, whilst the vessels of the skin are imperfectly filled, and its action very deficient. The case of the blacksmith draws one line of demarkation—the sweat of death the other. Between these two lines, we have all the possible degrees of difference of which the state of perspiration is susceptible.

CHAPTER IX.

DIAPHORETICS—CONTINUED.

When the system has been long in a state of debility, of that sort which obtains in chronic diarrhœa, &c. a species of injury is effected, which so far as we have yet learned, remained unnoticed till the year 1810, when the application of heat after the manner in which we recommend it, led us to a consideration of the subject. It is known, that the system in its powers for adaptation, ultimately adjusts the circulation of the whole stream of arterial blood, which is sent into an amputated limb, although deprived of all the ramifications of the arteries and veins, below the line of separation. It is known also that the lesser branches of the arteries become sufficiently capacious to supply the absence of a trunk which may have been divided by the operation for aneurism. There can be no reason therefore to doubt, that the arterial blood, naturally destined to support the skin and undergo the functional agency of that structure, when excluded by a partial collapse of long standing, will ultimately find a return; and an enlargement of the calibre of the vessels, engaged for this purpose, will render the return so easy, that afterwards, the capillary circulation may never be sufficient to convey the blood in sufficient volume to the surface so as to effect the restoration of the functions of the skin. Hence the necessity of every possible aid to promote an easy, free and continued excitement of the cuticular surface not only in cases of chronic diarrhœa, but also and in like manner, in all chronic disease;

since it is probable, that the same thing occurs in a greater or lesser degree, in all cases of long standing debility.*

It may be thought, perhaps, that a frequent application of heat for the correction of such an error, may induce an increase of debility; but this is an unfounded appehension. An excessive sweat under such circumstances would be pernicious, and sooner or later, if persisted in, would necessarily destroy the patient. But an appropriate application of heat, supported by the proper auxiliaries, invariably has the opposite effect. If well conducted, the practice gives expansion to the vessels of the cuticular surface, the blood finds admission, bringing with it new life. By the aid of friction, the excitement may be maintained for a longer or a shorter time, when heat again becomes necessary. At length the circulation of the skin is established. It is to be understood, that in this view, it is supposed that all the while a proper attention shall have been paid to the condition of the viscera; and alterative, astringent, or tonic, or cordial remedies, have been employed, according to the existing demands of the case.

In any instance in which there may be an extensive congestion, the same considerations which would interdict a very copious blood-letting, would also forbid a very profuse or long continued sweat. There is a difference in favor of the use of heat, which we must notice in this place. The vessels, involved in a congested and almost lifeless mass, if subjected to a suspension of action for any considerable length of time, or to too great a diminution of action, which is more or less the necessary result of considerable blood-letting, a gangrene of the congested structures might speedily be induced. Too great an abstraction by a very copious

* In consequence of the facts here stated, we find that persons having become acclimated to a very sickly location, as also, such as have long labored under chronic visceral disease, are always pale and their skins are peculiarly poor and thin. All these, have by habit become able to live, the skin having almost become destitute of its circulation and functions.

sweat might produce a similar effect. But a judicious application of heat, by rendering the blood more fluid, of course by improving its condition, through a more effectual agency of the blood-making and blood-repairing organs, the condition of the congested vessels is improved, and they are sooner in a readiness to perform the functions of absorption.

In applying heat, the whole cuticular surface should be brought at once under its influence, in all cases when the system is in a state to admit of it; that is, in all cases which would admit of blood-letting; when there is too much debility for this, the application should commonly be confined, at first to the lower extremities. In recent instances, generally, whether blood-letting is necessary or not, the application may be made to the whole cuticular surface. In all such cases, the vapor bath, or heated atmospheric air, is the most convenient medium of application.

Sufficient experiments have established the fact, that the naked human skin can safely be subjected to a temperature hot enough to roast beef or bake bread, if the heat be dry, like the atmosphere of a heated room, and the subject of experiment may safely remain in a room so heated, long enough to cook a beef steak. Whereas the steam of boiling water, will in a few seconds inflict a mortal scald. The vapor bath, which will be described in the sequel, generates a dry heat, or more properly it heats a portion of atmospheric air and conveys it into the cavity provided by a suitable apparatus; so that the patient is heated, lying comfortably in bed, and the treatment can be safely continued until it produce the intended effect.

In doubtful cases, as also in cases of known debility with considerable emaciation, the application ought to be partial and is best made by applying jugs of hot water, or heated bricks; a leaden or copper vessel of convenient shape, would form a very desirable family contrivance. The temperature

of this may be regulated by the water with which it is filled, which may be more or less hot according to circumstances.

In the commencement of fever, the vapor bath should be preferred, and it may always be used with decision, so as to produce profuse sweating. So soon as the sweating is fully established, the further application of heat is unnecessary; commonly, however, it is best to prepare the patient by blood-letting.

It happens sometimes in recent instances, when there is pain in the breast or bowels, and when the propriety of blood-letting may be doubtful, that the application of heat may produce partial sweating and temporary ease; but unexpectedly, the perspiration dries up, the pain increases, and not unfrequently the patient feels considerable distress and oppression.* Such an occurrence at once reports the necessity of speedy and decisive blood-letting. After the depletion, the sweating process will go on very pleasantly, and produce the happiest result.

In some instances, when the system is tending to a state of congestion, and heat is applied, by whatever means, if the requisite blood-letting has been omitted, the heat will produce distressing restlessness and anxiety, as if the atmosphere needed oxygen, or the room needed ventilation; in such an instance there will commonly be an accompanying headache. Whenever the application of heat seems to produce these symptoms, blood-letting is necessary, after which a cathartic should be administered, because in almost all such cases, the blood-vessels of the viscera are in a state of unnatural fullness.

Heat can scarcely be applied with the necessary decision without producing some sense of throbbing in the head. The

* Physicians and others not well informed on this point, on meeting such an occurrence, have concluded at once that the vapor bath is a pernicious agent and have laid it aside, condemned as being unsafe and worthless. The truth is, they were ignorant in respect of the condition of the patient.

occurrence of this symptom is indicative of a sufficiency of the application at any one time; and if the system is in a state in which it is able to effect the necessary adjustments, on the retirement of the heat the throbbing will speedily subside, leaving no inconvenience to the patient; if not, it will be corrected by blood-letting. At this stage of the treatment, it is always comfortable and generally beneficial to the patient, to take a good drink of cold water.

In treating very feeble patients, it is the better way, not to continue the application quite far enough to produce the throbbing. It is more agreeable and safer, to take more time and let the heated air, &c. be applied and retired alternately, as it may be found to suit the case.

When the patient is feeble and aged, we should keep a constant application of a jug of hot water to his feet, and extend the application and vary it, according to circumstances, by using hot bricks wrapped in cloths, moistened with vinegar, &c.

It is often useful, sometimes necessary, to vary the application so as to alternate it between the feet and the sides, or abdomen, &c. the value and manner of which, the physician's own judgment and experience will enable him to perceive and manage, according to the emergencies of the case.

Sometimes in instances of recent debility, and almost always in those of long standing, a considerable application of heat can scarcely be set fully in operation, before the patient will complain of great sickness or sense of faintness. When either of these occur, let the application be retired for a little, and administer a glass of good old wine and water. So soon as the patient seems refreshed, renew the application. If after all, the heat should seem insufferable, apply a blister, and continue the jug of hot water only. The following day, resume the practice, and if necessary, repeat the wine and water. By proceeding cautiously and gradually, after some days, the patient will bear an intense heat and a longer dura-

tion of its application with less anxiety. The distress in such cases, is the inconvenience which is felt by the heart and central vessels, consequent on inviting the blood to the surface. The sense of faintness, is analagous to what would be felt, if a patient in similar circumstances, were improperly treated with blood-letting. In instances such as these, it is often necessary to use Hoffman's anodyne, vitriolic ether, or tincture of opium, in aid of the wine and water—ten, fifteen or twenty, sometimes thirty drops, to be administered about the time the effect of the external heat becomes fully evident. The intention of the tincture of opium is to maintain the excitement long enough, to give permanence to the action of the capillary vessels of the skin, and prevent a collapse of the surface, which would be apt to follow the treatment, if this precaution should chance to be omitted. By this sort of address and management, we have often recovered our patients out of the most deplorable condition.

In almost any case of long standing, as also in cases where blood-letting has been repeated three or more times, if heat be used as we recommend it, it is necessary after the bath to use a jug or bottle of hot water, or a sufficient number of hot bricks, to be exchanged as often as they begin to cool, to aid the feeble excitement of the cuticular surface long enough to resuscitate the vitality of the skin.

Having premised these general observations on the agency of heat, as a diaphoretic, or a remedy for the special treatment of the skin; we will submit some additional remarks respecting its use, in particular instances of disease—and first for the correction of the circumstances and appearances which commonly precede pleurisy, rheumatism, quinzy, &c.

After exposure to cold or wet weather a certain length of time, the system will express more or less a disposition to irritation, which will be evinced by headache and a sense of fullness, particularly, an apparent stuffing of the nostrils so as to impede respiration, and a disposition to chilliness. When

these symptoms occur, cider, wine and ardent spirit should be avoided. But before going to bed, special pains should be taken to establish the excitement of the surface. If ordinary measures fail to produce this effect; if an unusual length of time pass away, without becoming warm in bed, it may be taken for granted, that the skin has become constricted and the blood-vessels of the viscera distended; and unless those vessels are unloaded either by exciting the skin or by blood-letting, an attack of fever may be confidently expected. If a disposition to stretch and yawn, with a dull and heavy pain in the loins and a chill be felt; it may be considered the commencement of a paroxysm of fever. A patient in such a condition, by retiring to bed and taking an intensely hot bath, will be immediately relieved. The expansion of the skin makes room for the circulation, and the blood-making viscera with the aid of their several emunctories, are enabled to get off the load. If, however, any of the indications before stated should occur, calling for blood-letting and catharsis, these additional measures, of course, are to be taken, and the patient will almost invariably escape the threatened attack.

It is commonly thought, that the application of heat to a patient when actually attacked with pleurisy or inflammatory rheumatism, would be injurious. We are prepared to say, that this is an error. The reverse is true. After letting blood, the hot bath may be applied with advantage. In some instances it may seem to increase the pain, but it likewise affords an opportunity to repeat the blood-letting within a shorter time, by reason of the stability which it gives to the excitement of the capillaries, and of course to the action of the absorbents. In treating a patient with external heat in a pleurisy, the application should be intense; the greater the pain and the more violent the action of the heart and arteries, the more intense should be the degree of heat employed in the case. By letting blood the arterial action is suffi-

ciently reduced to protect the head and the lungs; and the excitement enforced on the surface by the agency of heat, brings into use the sensorial influence in a manner corresponding to the intention with which we administer an emetic after blood-letting in similar cases. By the auxiliary operation of one or more gentle cathartics, and the continued use of a little antimony, the sensorial influence is diverted from the point of internal irritation, and is fully employed in meeting the increased demands of the skin. So long as the action of the skin can be maintained by this kind of management, there is no need of applying a blister. But if it begin to fail, recourse must then be had to epispastics, which must be sufficiently extensive to take command of the system.

It was formerly the practice, in this disease, to let blood without taking adequate measures to disarm the system of its accumulated sensorial influence; the consequence was, that hemorrhagic reaction made additional bleedings necessary. But we shall have occasion to extend this investigation, when we shall submit our views on the subject of epispastics.

Under similar circumstances and appearances, the same kind of practice is equally proper, without regard to the name of the disease.

In rheumatism, particularly in its inflammatory form, the application of heat requires some special considerations. The arterial action is ordinarily too strong, and one or more blood-lettings are necessary. After letting blood once, twice, or three times, unless special care be taken, the excitement of the skin will falter. If this be overlooked, the power which ought to be expended on the skin, will determine on the parts which are in a state of irritation in consequence of the rheumatic action. Hence the external application of sinapisms or epispastics, becomes imperiously necessary, and it must be repeated again and again, according to circumstances.

At length however, although the skin may be excoriated to a considerable extent, still it fails in its action. This failure comes on gradually, because the strength of the circulation gradually subsides. If the action of the skin *sui generis*, depended exclusively on the power of the nervous system, abstractly from the concurring influence of the circulation, irritation alone ought to be sufficient to maintain the action of the skin. But it will fail, and not a few of the chronic instances of the disease become unmanageable in consequence of this circumstance. The nervous influence which ought to be continually employed in maintaining the action of the skin, becomes permanently expended in maintaining the rheumatic action. When sinapisms and epispastics begin to fail in overruling the pain, then is the time when the general application of heat is called for. The sinapisms and blisters may excoriate, but the effect speedily passes away, because of the absence or retirement of the blood. The want of sensorial influence which the presence of the blood supplies to the nerves of the skin, so weakens their power, that although they be irritated with rubefacients, they are not able to maintain the excitement to the necessary amount. But if the aid of heat be employed, and repeated, and continued, as the case may require, in the course of a few days, the condition of the skin will be corrected by the presence of the blood so long maintained in it, and its excitement again established.

As these remarks are not merely applicable to cases of rheumatism, but are equally true in all corresponding circumstances, they may serve to regulate the practice in all chronic cases of rheumatism, gout, dysentery, &c. &c. Perhaps we ought to say, that cases of phthisis pulmonalis, and instances of marasmus, should be excepted; inasmuch as such patients cannot well sustain the amount of change produced in this way in so short a time. Such cases are better treated with friction, aided by jugs of hot water, hot bricks, &c. &c.

In dysentery, the practice may be employed to the best advantage, especially if called early to the patient. In cases of this affection, it would often be best to commence with the application of heat. If blood-letting ought to be employed, when at the same time the symptoms indicating depletion are doubtful, the action of heat will make them obvious. After this application, with or without the aid of blood-letting, we proceed to evacuate the stomach and bowels with great decision, taking care to insure a continuance of the excitement of the skin; and commonly in one, two, or three days, this method will put an end to the disease. If, however, the case have been neglected, and shall have become chronic—if in consequence of delay the blood making organs shall have been seriously impaired, then the decision which this practice implies, may be too great. In such cases, a gentle diaphoresis should be maintained by the use of epispatics, hot jugs or bricks, with a view to sustain the excitement of the skin, at the same time that the necessary evacuations of the bowels by the agency of alteratives are going on; and in protracted cases, after debility obtains, the necessary tonics and astringents are to be employed.

In cholera morbus, this practice is most effectual; and is delightful to the patient. In this disease, there is the most alarming desertion of the cuticular surface, accompanied by a corresponding determination of fluids upon the intestines. We have stated in another chapter, that this disease is not exclusively the effect of cold; that the predisposition is commonly consequent on a gorged condition of the blood-making organs; and that therefore further depletion is generally required, after the alarming symptoms are allayed, notwithstanding that in time of its violence, there is such obvious danger of destruction by too much evacuation. The common practice is to administer large doses of tinct. opii, which is often necessary; and we have associated with the use of

this agent, free draughts of very hot but weak spirit and water. The intention of each and of both together, is to arrest the morbid determination, recover the superficial excitement, and establish it, and so prevent a recurrence of the introversion. This intention can commonly be insured in less time, and with less risk to the patient, by the external application of heat, which, if sufficiently done, will leave the skin permanently excited, and the bowels corrected; except that if there existed a previous organic error in any of the viscera, after arresting the alarming appearances which constitute cholera morbus, the patient may be treated as his condition may indicate.

In bilious cholic, this practice is pre-eminently important. In this affection we commonly have a diseased liver, a congested state of the viscera, or more frequently a gorged condition of the venæ portæ, and an inflammatory state of some one of the intestines. Cathartics fail to operate, whilst excruciating pain threatens the destruction of the patient. In such circumstances blood-letting is indispensable. But in consequence of the ill condition of the blood making organs, there is danger that the excitement of the surface may fail before the blood-letting will have been effectual in correcting the inflammation. Hence all the reasonings which have been offered in support of the necessity of keeping up the cuticular excitement, in any case, are emphatically applicable to this. From much experience, we have learned, that it is useless to administer a cathartic, until the inflammatory action is well subdued. Enemata of a mild sort are never injurious, and it is in no case amiss to employ appropriate doses of calomel, in view of correcting the local and general affection. Therefore, after a decisive blood-letting, we apply the external heat, intensely, then administer an ordinary dose of calomel, and follow it, after three hours, with a dose of castor oil. If it succeed in procuring catharsis, so far well;

if not, the recurrence of pain and other concomitant appearances, will soon make known the necessity of blood-letting: which done, we coerce reaction by a repetition of heat; and so on, until the skin fails to obey heat alone. Then an epispastic eight by ten, or ten by twelve inches, is necessary to keep up the centrifugal action, until the intestines shall have been relieved.

CHAPTER X.

DIAPHORETICS, CONTINUED—RULES RESPECTING THEIR APPLICATION.

Diaphoretics are particularly indicated in all those febrile affections which are consequent on the influence of atmospheric vicissitudes. The first link in the chain of morbid action, in diseases from this cause, is torpor of the cuticular surface; of course of the perspiratory vessels. It is always therefore greatly important, to secure a full establishment of the excitement of the skin.

In the phlegmasiæ, diaphoretics are among our most common and useful remediate means. Taking care not to use stimulating diaphoretics when the febrile excitement runs high, until the inordinate action of the heart and arteries shall have been previously moderated by bleeding, and suitable evacuations of the bowels. Such articles, however, as are known to be refrigerent, or relaxing diaphoretics may be used in fevers of the most inflammatory character.

In the treatment of intermittent and remittent fevers, diaphoretics are among our most common and useful remedies. When there is a hot and dry skin in fever, it is invariably attended with increased distress to the patient; and nothing affords so much relief as a free perspiration. It is not always necessary, however, to procure a copious sweating; commonly it is quite sufficient to keep the skin moist, being careful to evacuate the bowels, before we have rocourse to diaphoretics. This is necessary, because any considerable irritation of the bowels would prevent diaphoresis; and if there

be any undue fullness of the viscera, it will be found that an attempt to excite a diaphoresis will serve only to increase the distress. If the action of the heart and arteries be very considerable after blood-letting, we should use nitre, antimony, &c. In fevers of a low, vascular action, with a burning and dry skin, stimulating diaphoretics must be used in conjunction with suitable applications to the external surface, such as cool or tepid affusions. In typhoid fevers, it is of very great importance to excite the skin and the subcutaneous vessels. The patient is ordinarily too much prostrated to bear the loss of blood. It is therefore important to invite the circulation from the organ which is in a state of congestion, and do all in our power to maintain the excitement of the skin, so as to prevent any avoidable introversion of the blood, until the congestion shall have been corrected. This is done by the application of cloths wrung out of hot water; bladders or bottles filled with hot water; by large sinapisms, or rubefacient frictions of the most active kind. These should be diligently continued, until the skin shall have sufficiently recovered its action to maintain a disposition to diaphoresis. Copious sweating is seldom proper in a case of this sort, except at its commencement; in any event, only in its early stages, before the system has become greatly debilitated. This form of fever ought to be arrested in its forming state as stated above.

When we intend to excite diaphoresis by ordinary means, the patient should be confined to his bed. If the pulse be strong, full, and tense, blood-letting should be premised. This is a rule so plain that it needs only to be stated. If there be a disposition to inflammatory action, the indications of which are unequivocal, the same precaution is necessary; if the appearances are doubtful, and it should turn out on the administration or application of the diaphoretic agent, that the patient becomes more restless, with increasing signs of pyrexia, we may then be assured, that more depletion is re-

quired. The state of the general system will direct us in the selection of the plan or article to be used in any particular case. The profession will tell us unanimously, that when the pulse is vehement, antimonials, neutral salts, accidulated drinks, cool ablutions, &c. are to be employed. When there is no appearance of inflammatory action, recourse may be had to stimulating diaphoretics. When the perspiration appears, it may be supported by appropriate stimulating drinks.

Diaphoretics are more effectual after digestion is completed; during the performance of this function, the emunctories of the skin are less disposed to act. Whilst the sweat is flowing, bleeding and purging are commonly inadmissible. Temperature is to be regarded, and sudden changes are to be avoided.

The best and most powerful diaphoretic agent, in view of the principles by which we should be directed, is dry heat, applied to the surface in any manner so as to be completely efficient. In explaining the theory which we have adopted as a guide to our therapeutics, we have endeavored to demonstrate that in any case in which there is a deficiency of excitement, whether through direct or indirect debility, there must be a corresponding deficiency of heat. In all cases in which the excitement of the skin is in such a state as to require artificial interference, there must exist either the stricture, which is well enough described by Cullen, when he named it a spasm, or else that kind of collapse which is consequent on a too long continued absence of the blood. The stimulating and expanding power of heat will be the most speedy and agreeable corrective. It is a pleasant circumstance, that when this kind of treatment is particularly necessary, it is more or less pleasant to the patient. It is true, much will depend on the manner of making the application, as well as on the circumstances of the case. In any instance of indirect debility, we could scarcely conceive how exter-

nal heat could fail to be exceedingly comfortable, not only because the surface is really cold, but because the strong tendency of the circulation to determine on the viscera, makes it particularly acceptable to the patient, to have both of these morbid circumstances simultaneously corrected. In cases of direct debility, it is an agreeable application, if the heat is sufficiently moderate with a gradual increase of temperature. In such cases, we have found that jugs filled with water at nearly a boiling temperature, and placed at the feet, knees, or sides of the patient, impart the necessary heat in the most agreeable manner. Sometimes it is useful to add a little good vinegar, by moistening the cloths with it before wrapping them around the jugs, and after the external arrangements are all made, and are beginning to take effect, then a suitable cordial diaphoretic, may be administered, by the aid of which, the diaphoresis will be more complete and extended.

In cases of collapsed skin of some standing, and when it is most important to re-establish the cuticular excitement, in many instances, the effect will seem to be transient, till it shall have been repeated often and long enough for the recovery of the vitality of the capillary structure of the surface. In a case of this kind, the operator will receive conviction, that the absence of the blood is the true cause of the collapse, and the return and establishment of the circulation restores the vitality.

It has been stated that heat stimulates and invites the retnrn of the circulation, whilst it has a constant tendency to soften and expand the capillaries for the reception of the returning blood. Ordinarily, diaphoretics must produce the effect by compelling the feeble system to assume an action which shall recover all those numerous blood-vessels which may have become torpid for want of the necessary vitality, in the performance of which, it must also overcome the resis-

tance made by the concomitant collapse, of course requiring a degree of propelling power not easily to be estimated.

Excitement, or the motions pertaining to animal life, necessarily require the expenditure of the nervous influence, which maintains it. In disease produced by an accumulation of this influence, such as pleurisies, rheumatisms, &c. it is a great advantage to be in possession of an agent, by which a degree of expenditure adequate to the accumulation, may be speedily and safely accomplished. Heat supplies this agent. By the action of heat, we can raise such an intense degree of superficial excitement, as shall be sufficient to expend the accumulation; and therefore the effect will be more perfect if the application shall be made as intense as it can be endured by the patient. The skin is prepared to bear this kind of stress without injury, and the strong and permanent excitement which is produced in this way, is effectual in preventing a return of fever.

Powerful medicines, when taken into the stomach, pass on beyond the reach of control, and will have an effect corresponding to their strength, which makes it indispensable for the safety of the patient, that the judgment of the physician should not err. Heat on the contrary, when externally applied, is completely within our control, as it may be retired in a moment. Its effects may be instantly counteracted by the application of cold. Even if the impression have been fully made, and the sanguiferous system have been too much excited, an appropriate blood-letting will instantly allay the threatened violence, and the practice will be followed by the most salutary and pleasant effect.

In cases of chronic gout, or rheumatism, in any instance of cramp or internal spasm, as cholic, in which the propriety of blood-letting may be doubtful, as also in any instance of violent pain from a morbid determination of the sensorial influence, we may safely employ this overwhelming agent, so as to retire the pain, and permanently maintain the superfi-

cial excitement; or if, on effecting a general distribution of the excitement, which heat under ordinary circumstances will not fail to do, it shall turn out, that blood-letting shall be found to be requisite, not only the necessity of depletion will be evinced, but the patient will receive much greater benefit by loss of blood. In many instances, patients may be made to receive the benefit of blood-letting by the aid of these arrangements, when in a similar condition, and under other circumstances, that practice would not only disappoint, but do great mischief.

A stricture of the vessels of the cuticular surface, under certain unfavorable circumstances, requires the expansive as well as the stimulating power of heat for its correction; and very commonly, if it have existed for any considerable length of time, although blood-letting may be imperiously necessary, still it will be found most beneficial, and the quantity of blood necessary to be lost in the case, will be much more accurately adjusted by the previous application of heat to the cuticular surface. In cases where we may have erred in our calculation respecting the reaction after blood-letting, our intentions can be insured by the same means.

When the stricture shall not have been corrected in due time, and the cuticular surface shall have fallen into a state of collapse, it often happens, that no internal diaphoretic agent known to the materia medica, will be found adequate to the demands of the case, &c. for example, diseases in which the skin is particularly emaciated, hard and dry, its whole plate so flattened and inelastic, that there can be no doubt of its vessels having become nearly impervious. In all such cases, the resistance made by the skin itself, to the distributive tendencies of the most appropriate remedies, will be sufficient to prevent a cure. Sometimes frictions, blisters, issues, &c. reiterated again and again, do eventually prove availing; but in most instances they do not. If we have re-

course to the agency of heat, to give expansion to the capillaries, so that a portion of blood can again be admitted; with the returning blood, there will be a return of vitality, and eventually of excitement. And this manner of its management, with the alternation of suitable auxiliaries, if judiciously conducted, may be made effectual for the recovery of many cases, which under other circumstances would be lost.

To say the least, when ordinary measures shall have failed, we shall deem it due to humanity to have recourse to the plan here proposed, which under the most unfavorable circumstances, will very often be found powerful enough to maintain its just pretensions to sound medical philosophy.

CHAPTER XI.

THE ALCOHOLIC VAPOR BATH AS A DIAPHORETIC, AND AS THE MOST EXTENSIVELY USEFUL OF ALL GENERAL AGENTS.

In giving our statement on the subject of our apparatus for generating and applying dry heat, for the prevention of disease, and for the relief of the sick, our readers will indulge us in the use of some repetition.

Having tried the experiment hundreds of times without meeting one exception, we assert, that in every case of fever, and in all cases of direct debility, artificial heat, in an appropriate degree, brings pleasurable sensation to the patient, and may be so managed as to produce cordial effects.

There are some remarkable and important advantages attending the use of this cordial, which no other can possibly claim. In every case, where properly used, it produces a full effect, without imposing any improper stress upon the central vessels. So that in securing the most pleasant diffusion of excitement, it offers no injury to any of the organs essential to life; ordinary cordials, on the contrary, are dependent upon the struggle which they may excite in the heart and central vessels, for any and every centrifugal effect which they may produce.

Again, at the same time that heat, by its stimulating power, invites excitement to the surface, it softens and expands the skin, in a way preparatory to receive the returning blood. Ordinarily, cordials must accomplish the effect, by compelling the feeble system to assume an action sufficient not only to

resume all those branches which it had abandoned because it was not able to maintain them, but also to overcome all the resistance of an almost lifeless collapse of the vessels on the surface, possibly one-fourth part of the system.

It is true, that heretofore insuperable difficulties attended the use of this agent in many cases. But by the aid of our apparatus, every difficulty is perfectly corrected, and the application of heat can be made with such precision, as fitly to meet the most accurate intention.

We have said, that "in maintaining excitement, sensorial power is expended,"—and, of course, that "extraordinary excitement must produce a preternatural consumption of that power." In any case of predisposition with accumulated power, such as pleurisy, it must be a very important acquisition to have a remedy at hand, by which such expenditure can be speedily and safely accomplished. Heat is the agent. By raising an intense degree of excitement on the surface, every necessary effect can be produced with the utmost safety. This is sufficiently evinced by our remarks upon the influence of heat in a summer's day.

We have said that pain also has a considerable effect in expending sensorial power. By exciting as much heat on the surface as can be borne, the pain of heat, together with the concomitant increase of excitement in the vessels of the skin, will certainly and safely correct most instances of predisposition to fever. The skin is not easily injured in this way, and the strong determination to the surface, which is secured by this method, most effectually guards the system after the process is ended.

Other powerful remedies, when once administered, are gone beyond the reach of control, and must have their full effect, whether judiciously or injudiciously administered. But if too much heat shall have been employed, it is perfectly within our reach to check its influence, by an immediate application of cold. Besides, if it should be found that the

blood-vessels are too much excited, blood-letting will safely correct this effect.

Again, in cases of gout, rheumatism, spasm, cholic, &c., when there is a morbid determination or location of excitement, heat affords a safe agent by which to correct the determination, and maintain a sufficient degree of general action on the surface, till the system can recover a balance.

The bath produces no loss of vital fluid, and therefore any moderate degree of debility produced by it, is quickly recovered. A pleasant expansion is given to the vessels of the surface, and by heat they are stimulated into increased action. The circulating blood is invited from the centre to the skin. The intestines, therefore, by being partially deprived of excitement, are for a time relaxed. But when the bathing is ended, the circulation returns to its natural equilibrium, without any subsequent inconvenience.

In any case of sudden emergence, the bath may be administered by supporting the bed clothes with a staff or board of suitable length, or with any sort of a temporary frame, taking care to use a few sheets of paper, to defend the bed from being scorched; and to adjust the whole affair so as to secure a free diffusion of the heat over the body of the patient.

There should be provided in every family where the bath is used, a suitable frame* for the purpose. It might be something like the following description: Half a circle, or a half hoop of good strength, and twenty-two inches in diameter, will form the end which is to stride across the body of the patient a little below the breast. A half circular board, eighteen inches in diameter, will make the foot end of the frame. A thin board four feet long should cover the top, and a lath

* This frame is highly important, and in many cases indispensible. In pleurisies and other violent cases, the heat ought to act at once with considerable violence upon the whole surface. Indeed, the frame ought always to be used when it is intended to produce a general perspiration.

or two of similar length, should secure each of its sides. A hole of suitable size should be made in the middle of the foot end, for the introduction of the tube.

The patient should be stripped of all his clothing. The frame is to be laid over him in bed, and a sufficient weight of bed clothes should be used so as to confine the heat properly. A sheet, and four or more blankets, or other covering to that amount, for the winter season; a blanket less will serve for the summer. The bath is applied at the feet, which is most proper in all ordinary cases, and the heat has a free opportunity to diffuse itself all round the body of the patient, which is alwas important. The weight of the bed clothes being properly sustained by the frame, he can turn himself over at pleasure, which will give him the advantage of warming first one side and then the other, as it may be most agreeable to his feelings.

As complaints should always be met at their first appearance, before the patient is exhausted by disease, in cases of very robust patients, it is often safest to take some blood before the bath is applied, especially in the winter and spring seasons of the year. It sometimes happens, when the propriety of blood-letting may be doubtful, that the bath produces partial sweating and temporary ease, but presently the perspiration suddenly dries up, and the pain increases. This circumstance will at once determine the necessity of blood-letting, which, in such an instance, will be found more effectual after the bath, than it would have been if performed prior to its application.

In some instances, also, when the bath is administered to patients inclined to be feverish, when blood-letting has not been premised, when the bowels need a cathartic, and especially when too small a cup has been used, an uncomfortable restlessness is felt. This circumstance, as well as a head-ache, if they continue any length of time after the bath, should be

relieved by some agreeable cathartic dose, and blood-letting when necessary.

In cases where it may be used with great decision, it commonly produces some throbbing of the head. When this appearance is considerable, the process may be discontinued, and if blood-letting is not necesssary, the trobbing will quickly subside. In delicate cases, however, it ought not to be pushed up to this pitch; the fire should be lighted and extinguished alternately, as it may be found agreeable to the patient.

In cases of feeble, and very old persons, the smaller cups ought to be used. And it ought to be repeated once every sixth hour, sometimes once every third hour. Meanwhile, the patient should be supported by nourishment and cordials. In such a case the intention should be to warm the patient effectually, but not to produce a sweat.

Sometimes it may be beneficial to remove the apparatus from the feet to the side of the patient, and so on alternately, as the judgment of the practitioner will quickly discover.

In cases of long standing debility, it sometimes happens, that the bath is scarcely put into operation, before the patient feels distressing sickness and faintiness. When this happens, let the fire be extinguished, and give a glass of wine and water, with a very few drops of laudanum, and when sufficiently refreshed, rekindle the bath.

In all cases, so soon as a full and free perspiration shall have been established, let the patient use a napkin to wipe the skin wherever he feels inclined to do so, and let an attendant aid him in wiping his back and lower extremities, till the operation is ended; indeed till he is ready to put on his clothes.

In treating rheumatism, gout, diarrhœa, and all other chronic diseases, after using the bath, considerable friction ought to be continued for half an hour, or longer, before the pa-

tient leaves the bed. And when he rises for the purpose of dressing himself, he should take a seat at a good fire. During the intervals between the times of bathing, he should be treated with the same kind of friction every evening on retiring to bed, and every morning before putting on his clothes. The friction so continued will expedite recovery.

In almost every enfeebled case, it is necessary, after the bath, to use jugs or bottles, filled with boiling water, or hot bricks, to aid the weak excitement of the surface, that it may retain the advantages gained by the bath; and in some cases blisters should be added.

There is no danger of taking cold. The hot air which is used, is as free from moisture as atmospheric air. It will dry a damp sheet. Besides, in all the instances in which it has been used, we have not known one, by which the patient found any ill effects in that way. Indeed, if such a thing should happen, another application, and a little care, would perfectly correct every inconvenience.

When the patient is not much reduced, and seems to be too long coming into a state of perspiration, we commonly add more heat. If two or more cups cannot stand within the base of the bath, we place them in any way we can, propping them up with bricks, or any other convenient support. The heat of two or three cups will be drawn up by the tube. If the patient complain too much, we remove one of the cups for a few seconds, and replace it so soon as the heat a little subsides. By this method our object is more speedily, certainly, and safely accomplished.

Fleshy patients, if treated with the bath, should be heated in a gradual manner. If pale and short-breathed, the decision proper in ordinary cases might do much mischtef. Indeed, in almost any case, where there is a long standing sallowness of complexion, it is not proper to force a sweat. In these cases, it may require many gently repeated trials before a natural state of the skin can be recovered. And in most

instances of this sort, blistering, friction and cordials, as wine, &c. ought to be employed as auxiliaries to the bath.

With suitable variation in the degree and continuance of the treatment, according to circumstances, the bath will be useful in all the following forms of disease, viz:

In colds, catarrhs, croups, asthmas, pleurisies and fever in its various shapes, whether intermittent, remittent, continued or nervous. In all these, the application should always be general and decisive—taking care to begin the treatment on the first onset of the complaint.

In local inflammation, &c. such as sore breast, in female cases—swelled testicle, anthrax or carbuncle, sore throat, quinsy, ear-ache, tooth-ache, when produced by cold, or in cases of abscess or imposthume, the application may be general at night, and topical or directly upon the part affected, at any time in the day. Or if the one method prove ineffectual, let the other be tried also.

In St. Anthony's fire, nettle rash, scald head and such like affections; in these the application may be made as in cases of local inflammation.

In suppression of urine, and other painful affections of the bladder, in cholic, cholera morbus, and in cases of stragulated hernia, &c. In these the application should be general and local, more or less decisive, and repeated as the exigency of the case may require.

In female complaints of a certain description, including difficult labors, floodings; also hysteric fits, cramps, and other hysteric affections; here the application might be general, though sometimes it might be as well, to confine it to the lower extremities.

In piles, whether blind or protruded. Let the application be very hot, and direct it upon the part affected, to be repeated as often as the symptoms make it necessary.

In bleeding at the nose, or in hemoptoe or other recent case of hemorrhage. The application should be general,

repeating morning and evening, keeping the patient still and warm, and making a free use of table salt, say a teaspoon full three times a day or oftener. And if necessary, take the following pill, viz: take acetate of lead, six grains; opium, three grains: make six pills—give one morning and evening; but let the salt also be continued.

In excessive fatness. Let the application be general at night, to be moderately repeated next morning, and to be used two or three times in a week.

In old age, and other feeble cases. Here use the bath instead of a warming pan. Warm the patient in his bed night and morning, in all cold and damp weather, still directing him to remain in bed till nine or ten o'clock, and then let him get up to a fire, whether in winter or summer.

In gout, rheumatism, &c. Sometimes the application should be local, sometimes general, as it may be found most effectual.

Lying-in-women may be put to bed at once, in clean sheets and dry linen. Only applying the bath immediately, so as to produce a gentle perspiration.

We have often used it with most satisfactory benefit, in cases of whitlow, and every kind of superficial inflammation. Its success in such instances, depends upon the same process in the vessels, which is excited by Dr. Physic's practice when it corrects a disposition to gangrene, by the application of a very large blister.

The following letters will afford all necessary additional information for the common use of the bath:

The Rev. Mr. Reid is a learned and excellent minister of the Presbyterian Church, Lynchburg.

Lynchburg, September 26, 1815.

Dear Sir: I have had your patent bath in use in my family about two years, have applied it in a variety of cases, and have always perceived the happiest effects to follow. In a word, I consider it a most efficient agent in arresting in their

incipient state, all diseases originating in cold; and that a judicious person, by its aid, may generally manage all common cases of sickness in his family, without medical assistance. Yours, very respectfully, WM. S. REID.

Dr. S. K. Jennings.

The following letter is from General Preston, then Treasurer of Virginia:

Richmond, March 26, 1814.

DEAR SIR: I should be wanting in justice to you, not to inform you what effect the application of your newly invented hot bath had upon me, in a paroxysm of the rheumatic gout. The attack was in my ankle and heels of both feet, and the great toe of the right. During three days, the pain increased, and with such violence, that I was in the most extreme agony. In the height of this extremity, my brother, Col. Francis Preston, came in to see me and proposed, rather jocosely, that your apparatus, which was just then beginning to be spoken of in the city, should be introduced to try its effect. As every other of the usual applications, such as fomentations, rubefacients, camphor, &c. had failed, I consented, though without any high expectation, or much confidence, but like other persons in great pain, was willing to try almost any thing which is prescribed for relief. It was accordingly introduced and applied, and in about forty minutes, before one cup of the burning alcohol was consumed, it produced a complete remission of the pain; I fell into a sound sleep which lasted nearly seven hours; and when I awoke, was so far restored that I felt an inclination, and thought I had the ability, to ride in a carriage for exercise, which I would have attempted, if the weather had been favorable. On every return of the spasms, which after the first application of the bath grew weaker, I used it as seemed agreeable; and, with one exception, which I now attribute to an injudicious application, it never failed to produce relief.

Its utility in such complaints, indeed in all inflammatory diseases, strikes me most forcibly. I have no doubt that my cook was rescued from a severe fit of pleurisy, to which she is subject, by a timely and judicious application of your alcoholic bath. She was completely restored to her usual health in two days. With sentiments of high regard, I am, dear sir, your obedient servant, J. PRESTON.

Dr. S. K. Jennings.

—

Col. John Ambler was well known as one of the most respectable citizens of Richmond.

Richmond, March 14, 1814.

DEAR SIR: For some weeks past I have made use of your steam bath, in cases of cold and fever, where there have been evident marks of violent inflammation, attended with great pain. In each of these instances the patient has been relieved within a few hours.

I have also used it in a cutaneous complaint of long standing; although the disorder is not removed, still the general health of the person has been evidently improved from the use of the bath. I am, respectfully, your friend and most obedient servant, J. AMBLER.

Dr. S. K. Jennings.

—

Mr. Grigsby, who follows next in order, is a respectable citizen of Prince William county, Virginia.

August 2, 1815.

DEAR SIR: In justice to you and to the community at large, I cannot longer be silent upon the good effects which I have witnessed from the use of your patent steam bath.

In June, 1814, I was taken ill with a dysentery, while in the city of Richmond. My friends thought I would do well to recover in four weeks. The bath was twice used and I was cured without other remedy. I immediately purchased one for myself. Shortly after a Miss Cowles of my neigh-

borhood, was taken sick at my house. A bilious cholic. So extremely ill that she was unable to undress herself. I treated her with the bath till a free perspiration was produced. It gave her entire ease. She slept well that night, ate heartily the next day at every meal, and was quite well. She was habitually subject to attacks of the same kind, which in every former instance had required much medical attention. It has been more than twelve months since she was cured by a single application of the bath, and there has been no return of her complaint. She now constantly asserts that she would rather have the bath, than the best physician in the world without it.

My wife's sister was afterwards taken with a violent bilious fever. She was cured at once, and says she would not take any consideration for the bath if another could not be had.

Mrs. Crisman, a poor woman in my neighborhood, had been confined to her house from September until June. I gave her three applications of the steam bath, and the next day she walked to see one of her neighbors, and has not been confined since.

I visited a friend in Frederick county. In the neighborhood there was a certain Miss Mitchell, extremely ill with a bilious fever. I had carried my bath with me. I went to see her, and requested the privilege of trying it in her case. She recovered immediately—believes confidently I saved her life, and expresses much gratitude.

Two other ladies were ill with violent cholic, both of whom were immediately relieved upon the application of the bath. I myself was the first in this neighborhood who took the late epidemic. I had a terrible pain in my head, with a wonderful disposition to sleep, and my throat was very sore. I was taken about four miles from home. At my request, Mr. Foote sent for a bath. I had it applied that night, and

the night following. The next day I got home. My friends were alarmed and privately advised my wife to send for a physician. But I forbade her. At length she told me that a certain gentleman, a man of good information, had given her his opinion, that I should certainly die, and that the credit of the patent steam bath would be gone forever, as it would be said that it had killed me. I told her that she could contradict that statement, inasmuch as she knew I always was better after the application. I used it night and morning to my feet, and when my throat would be so sore and stiff that I could not swallow, I applied it to my neck, so as to sweat my head and neck, which was a great advantage to me. I recovered in a few days, and took not one particle of medicine. Afterwards my family was seized with the same complaint. Ten of them down at once. I bathed them and proceeded in other respects, as your pamphlet directs; and although many were sick, through mercy they all recovered, and I had no physician.

On the 1st July last, my house servant was seized with a flux. He discharged great quantities of blood, for more than a week, before I was made acquainted with his condition—two bathings effectually cured him.

I cannot enumerate all of the many cases which I have already relieved with the patent steam bath. I do not believe that even you yourself, can sufficiently appreciate the great good that may one day result from this invaluable remedy. It will bring lasting blessings on the human family, and I believe no man can say too much in its praise, only let it be fairly tried.

From your friend,

A. Grigsby.

P. S.—Mrs. Crisman was so drawn up and decrepid with rheumatism, that she could not straighten herself until after I had given her the bath.

Mr. Eppes was a respectable citizen of Lynchburg:

September 26th, 1815.

Dear Sir—Having used your patent bath in my family for more than two years, I feel it my duty to bear testimony of its worth. My wife at one time was seized with a violent fever, which increased rapidly, so as to excite alarm. Her pulse in the space of three or four hours from the commencement, beat one hundred and ten strokes to the minute; I gave her the bath, which so completely broke her fever in the course of the night, that she was almost well the next morning; some slight feversh symptoms only remained, which wore off without any further aid. In two instances a niece of our's was very ill. The first, a high fever, attended with a sore throat and soreness in the stomach, with great stupor. The other a case of measles. In each a single application of the bath afforded entire relief. In the last there remained the breaking out of the measles only, without any pain. Seven or eight others of my family were sick all nearly at one time. The symptoms were, first a chill, then a high fever, sore throat, soreness at the stomach, great stupor or sleepiness. Two or three applications of the bath, made at intervals in each case, with the aid of a gentle cathartic, restored the patients on foot in the space of three to five days; except a single instance only, in which the patient's throat was so inflamed as to compel us to prop her up in bed, in order to save her from strangling. In this case, immediately after the third bath, blood-letting and a blister plaister were added; after which the patient fell asleep, had a good night's rest, and in a few days was restored to health.

Many other cases, such as pleurisy, rheumatism, dysentery, tooth-ache, and great colds; have been entirely relieved by the use of the bath most commonly without any other aid.

Hoping that all who try the bath may be attended with like success, I subscribe myself your humble servant,

HAMLIN EPPES.

Dr. S. K. Jennings.

—

The following five gentlemen, were all citizens of Lynchburg. Mr. Martin and Mr. Carson, preachers of the Methodist Episcopal Church.

Lynchburg, January 1, 1815.

Dear Sir—I should consider myself wanting in gratitude, if I did not communicate the happy effects resulting from an application of your bath. My little daughter was suddenly seized in the night with a fit of the croup, which threatened immediate suffocation. I had recourse to the ordinary mode of bathing, which afforded but temporary relief. She continued with a high fever all the next day, with threatening symptoms of relapse. In the evening I applied your bath with such success, that in a little more than one hour she was entirely relieved, both of fever and all symptoms of spasm.

S. SCHOOLFIELD.

Dr. S. K. Jennings.

—

January 7, 1814.

Sir—Encouraged by the successful use you made of your alcoholic bath, in the case of my wife, when ill of the childbed fever, I have since tried it upon a negro boy, who was taken with a violent cold, attended with pains, so that he could scarcely move his legs. I repeated the bath several times. From the first application he began to mend, and he recovered in a very few days, so as to be able to walk about.

Respectfully, I remain yours,

CHRISTOPHER WINFREE.

Dr. S. K. Jennings.

January 17, 1814.

Dear Sir—I feel it my duty to inform you, that my wife who had been for many years much indisposed, subject to frequent attacks of violent colds, and when at her best, suffering almost daily attacks of chills and fevers, has tried your patent bath with the most happy effects. Upon three applications she was restored to health. It may be proper for me to state, that she is sixty-three years of age.

I am yours sincerely,

WM. P. MARTIN.

—

January 30, 1814.

Dear Sir—My little son was extremely ill of a bowel complaint. Ordinary medicines were tried in vain; and I had nearly despaired of his life. The bath was recommended and tried—its effect was so decisive, that by-standers could perceive the immediate amendment, and the child recovered, having received a single application. I am yours, &c.

ARMISTEAD TRUSLOW.

Dr. S. K. Jennings.

—

September 25*th*, 1815.

Dear Sir—I have for a considerable length of time been in possession of your patent bath, and have had occasion for the frequent use of it; my family having been much afflicted. I must confess to you sir, that I am highly pleased with it, and I think it a great improvement in the healing art. I have never known it fail to have a good effect in any instance in which I have applied it. As an instance, I would state that my wife for many years was subject to a violent head-ache. I thought proper to use the bath by way of experiment. It produced immediate relief. I have had it ap-

plied to myself, and must say that it is the most pleasant remedy that I ever used. Yours, &c.

JOSEPH CARSON.

Dr. S. K. Jennings.

—

Mr. Green, Mr. Seaman, Mr. Brough, and Mr. Shuster, resided in the borough of Norfolk. We can say nothing in confirmation of the respectability of these men which will be contradicted. The concurrence of their testimony will be deemed absolutely conclusive, by the citizens of that borough, and by all who knew their standing in society.

Norfolk, October 15, 1816.

Dear Sir—I was persuaded that your patent bath would be of great service to me, the first time I saw an account of it. For I had always been very subject to take bad colds, and in my younger days, could get certain relief by taking a good sweat in the common way; but after advancing in years, it had been with great difficulty I could be brought to perspire, and sometimes it could not be effected at all. As soon as an an opportunity offered therefore, I procured one.

I have now been making use of it for myself and family, which is fifteen to twenty in number, for nearly three years, and my expectations have been far exceeded.

From time to time, we have applied it in a variety of cases, and never once, without some good effect. In ague and fever, when the cases have been recent, they have been cured by the first application. In three cases of the cramp cholic, and one of them uncommonly violent; in each in about thirty minutes the patient was in a sound sleep, and within a few hours entirely well.

I think it a duty I owe to you, as well as to the public, to state two particular instances, which have happened to myself. Sometime last fall I was much disordered in my bow-

els, for nearly a week; occasioned I presume by a bad cold. It seemed as if it was so ordered by Providence, that the full effect of the bath might be tried. I had gone on neglecting myself from day to day, until I could scarcely attend to my business. I suffered extremely from a constant tenesmus. The gripings were very frequent, and the discharges little else than blood and slime. In this condition I went to bed, took a bath for about thirty minutes, which kept me in a profuse sweat all night. The next morning I had as copious an evacuation as I could have wished, and I felt entirely clear of the complaint, without taking one particle of medicine. The other instance happened about six weeks since. I was suddenly seized with a violent pain in my back and hip, so that I could not turn myself in my bed, any more than if my back had been broken. I applied the bath, in six hours I could sit up, and in a day or two was entirely well. Mrs. Green has applied it in a number of cases, to her poor neighbors, and scarcely ever without success. She has treated such cases as ague and fever, sore throat, rheumatism, disordered bowels, and even the tooth-ache.

In short, I think I can safely say, we have not only been saved from much sickness, but also from much expense. In the space of three years, we have not called in a doctor more than three times. I have only now and then to get a dose of physic from the apothecary, and that with the bath answers every purpose. I must furthermore add, that I never have received the smallest injury, though I have frequently got up before sun-rise and gone about my business as usual, after sweating profusely all night.

I am, with great respect, yours, &c.

RICHARD L. GREEN.

Dr. S. K. Jennings.

—

Norfolk, 10*th October*, 1816.

Respected Friend—I have used the patent steam bath in

my family for nearly three years, and am prepared to say, that its usefulness has far exceeded my most sanguine expectations; I feel it a duty to mention some among the many instances in which it has been proved.

Two grown persons attacked with the cramp colic, apparently in the most excruciating pain, were perfectly relieved in a short time, and in both instances were in a sound sleep in less than thirty minutes, and no return of the complaint since.

In several cases of the epidemic* that prevailed in the winter and spring of 1814 and '15, I also used the bath. It was found equally beneficial, and I can add, that its usefulness in a private family was made more conspicuous, from the circumstance of some of the above instances happening in the night, when it was difficult to get a physician, and I have never hesitated to make use of it without medical advice.

I have myself for many years been afflicted with a complaint in the head and stomach, and could find no relief but by blood-letting, and that only temporary. I have latterly tried the alcoholic bath, and have every reason to hope that I shall be able to lay aside my former painful remedy.

THOMAS SEAMAN.

—

Norfolk, October 12, 1816.

Dear Sir—If a certificate from me, respecting the efficacy and convenience of your patent bath, can be of any use to the public, you are welcome to the following facts.

I have been using your method and apparatus in a family way, upwards of two years and a half. My family is large. I make no pretension to medical skill, and Mrs. Brough more frequently applies it than any one else. Still however, after repeated trials, I am prepared to say, that our success has been fully equal to any thing which you had promised us in

* Pneumonia Typhoides.

the pamphlet upon the subject. In a number of instances, we have waited upon our friends and neighbors, and with the same uniform success.

Mrs. Brough has been afflicted with a gouty or rheumatic complaint for ten or twelve years past, and was generally confined during the whole of the winter. The last winter she used the patent bath upon herself, every night for three or four months; and two or three times a week for the remainder of the time, reckoning from the first of the year. She went abroad the most of the winter, and her general health is now very much improved.

We have used it in the commencement of several cases of small pox, in the measles in a number of instances; in agues and fevers, colics, and in all sorts of complaints, such as in a family way we ascribe to the taking of cold. In all these instances we managed the business as well as we could, agreeably to the instructions which you have given in the pamphlet; and we never failed of meeting with a degree of success even beyond our expectations.

I candidly think this remedy ought to have a place in every family. At least for myself, I would not be deprived of it now I know its worth, for ten times, no not for fifty times its cost.

I am, with much respect and esteem,

ROBERT BROUGH.

Dr. S. K. Jennings.

Norfolk, October 19, 1816.

Dear Sir—Having used your bath for nearly three years, with great success in my family, I feel myself bound to give you a detail of some of the good effects we have experienced therefrom.

There is residing with me an old lady, who was troubled with severe pains every winter for several years. She was

perfectly restored by one application, and there has been no return of the complaint, although it has been eighteen months since she was cured.

I have proved the good effects of the bath in several cases of colic, both upon myself and family. I have known it to procure perfect ease in twenty minutes, in the most severe cases. It is common for the patient to fall asleep, whilst under the operation.

A gentleman came from the country to my house, who had had the ague and fever for several weeks. He stated that he tried every thing the physicians had recommended, and found no relief. By a few applications of the bath, he was perfectly restored to health.

In all cases of bad colds, it is a most effectual remedy, and if it were for this only, I would recommend it to all families, as a most valuable family article.

I am pleased with it the more, because we can manage all common cases without the advice or attention of a physician. Indeed, I must say, that if it is used as you direct, there will not be much need for physicians or medicine.

Perhaps it might not be amiss for me to add, that the Rev. Mr. Waters, of Princess Anne, informed me, that in the way of charity he attended a great number of persons last winter, sick with the late fatal epidemic, and that in every case where the bath was applied, the patient recovered.

Yours, respectfully,

JACOB SHUSTER.

Dr. S. K. Jennings.

—

The following letter from Dr. Worth, of Guilford county, North Carolina, addressed to the Rev. Edward Cannon, one of the presiding elders of the Virginia conference, adds another instance of local disease, which deserves a place here :

Dear Sir—Being called on to attend a lady, who was supposed to have been bitten by a poisonous snake;* upon examination I found the symptoms which attend the bite of a viper, such as an acute pain in the wounded part, which was the foot, and a considerable degree of swelling, which extended up to a ligature, which had been early applied below the knee.

Several means had been used in vain, intended to remove the pain and swelling; the latter of which had become so great, that my patient was not able to move a joint below the knee; and this had been her situation for the space of three or four days. I made an application of Dr. Jennings' patent bath, locally. Whilst it was in operation, my patient informed me, that the pain was much relieved, and that she was able to move her ankle. The application of the bath only, a few times repeated, seemed to complete the cure.

DAVID WORTH.

* This lady was bitten in the night.

CHAPTER XII.

EPISPASTICS.

Epispastics, anciently, included all such articles as produce redness, inflammation, or vessication, when applied in contact with the cuticular surface. At present, the term is confined to such substances, as excite the skin so much as to produce vessication.

The rationale of their operation in the cure of disease, has been, perhaps still is, a subject of controversy. Formerly their value was ascribed to the evacuation which they produced. At present some judicious physicians are of opinion, that their secondary or purulent discharge, is more advantageous than the first effusion of serum; and think themselves confirmed, by the security which ordinarily awaits their patients, when abscesses occur; by the good effect which is often produced by the establishment of eruptions on the surface by the antimonial plaster, or other similar means. They are furthermore confirmed, by the reverse effect of drying up the eruptions, which are common behind the ears of infants, and for the correction of which, the re-establishment of the excoriation is generally effectual. Besides, the good effects of blisters are seldom conspicuous, until the secretion of pus commences. It is the fact, however, that a vessicated surface is beneficial, rather by its secondary effect in maintaining a determination to the surface, than by any direct influence which it can have, merely as producing so inconsiderable an evacuation.

Dr. Eberle says, "when we advert to the nature of the

diseases in which blisters act most beneficial, it appears evident, that their salutary operation must depend, mainly, on diverting the circulation from the affected organs, and directing it upon the vessicated part. Thus, blisters applied to the side in peripneumonies, establish an increased determination to the surface, and by this effect produce a derivation from the inflamed vessels of the pleura and lungs, enabling them to recover their healthful state." A blistered surface, he thinks, may be considered in the light of an excretory organ, the formation of which requires the establishment of a new current of determination of the blood. So long as the discharge continues, there will be an especial demand for blood in the blistered part, and a consequent derivation of the circulation from the inflamed and engorged vessels of the neighboring organs." The Doctor's opinion appears to be, that the local determination of the blood procured by the blister, and not an improved condition of the entire skin, is to be considered as the mediate effect, by which epispastics do good. The benefit sometimes derived from the application of a blister in erysipelas, he ascribes to the relief afforded to the inflamed cutaneous capillaries, by effecting their evacuation by the discharge of serum.

The beneficial effect of blisters has been ascribed to their stimulating and cordial effects. Dr. Chapman says "that these remedies are cordial and exhilarating," and considers this position to be established, by their efficiency in all nervous affections, whether distinguished by mental or corporeal infirmity and weakness." It is a fact, however, that in cases of great debility, blisters are most beneficial as mere rubefacients; and that if they produce a great discharge of serum, they serve to increase debility.

Dr. Cullen was inclined to ascribe the utility of blisters, to their supposed power of relieving spasm. Dr. Eberle thinks that the correction of internal irritation and congestion, and the relief of the internal organs from pain, may give a healthy

impulse to the various emuctories of the system, enabling the cutaneous capillaries to resume their proper action; and that in this way, and not by a relaxation of the system, it is, that the skin becomes moist under the influence of blisters.

In presenting our views on the subject of diaphoretics, we submitted the principles which explain the modus operandi of epispastics. In the degree in which they induce pain and excite irritation, they may be employed as counter-irritants. With this intention they are used in any instance of painful disease, and are applied as nearly as practicable, over the pained part. The serous fluid which is discharged from the vessicated surface, may in some slight degree imitate depletion, but the increased excitement of the capillaries will more than compensate the loss of fluid. Blisters, therefore, will not induce debility. If the blistered surface present a purulent discharge, the improved condition of the patient which almost invariably accompanies that appearance, is not ascribable to the discharge, which never is purulent till the skin is in the condition which promises convalescence. We have seen an epispastic applied and thrice repeated on the same portion of surface, before the skin could be roused sufficiently to effect a purulent discharge.

When the capillaries languish in defiance of warmth, friction, liniments or sinapisms, then blisters become indispensable; and the blistering point arrives whenever the capillary action threatens failure, which may happen before an attack of fever is apprehended by the patient. In a case of congestive fever, a pallid condition of the surface, associated with an alarming congestion of the portal circle, are the first discernible symptoms of the morbid condition which threatens destruction. We have seen a small work published by Dr. Daniel, of Savannah, who succeeds in very alarming cases of this sort, by making an extensive application of sinapisms over the chest, abdomen, and a portion of the extremities. This is his first remedy, which he continues until very sore

excoriations are produced, and which are followed by considerable ulcerations. By this practice, the capillary action of the skin and a resuscitation of its functions are established, which is the most important effect of epispastics. The profession has been led astray, as to the time and manner of applying epispastics and sinapisms, in treating fever—whether bilious, congestive, or other forms of fever. Many are of opinion, that such applications in the early stages of disease, act as additional stimulants and increase the morbid action. We know from experience, that in cases which require little more than decisive blood-letting, the application of a large blister immediately after the first or second blood-letting, will make another bleeding necessary sooner than it would have been required, if the blister had been longer delayed; and that by it, much time is saved and distress prevented.* In some instances of pneumonic affections, it may be more convenient to the patient to deplete the vascular system well, before recourse be had to the use of epispastics. But the state of things is different in bilious fevers, and especially such as are congestive. These are accompanied by great fullness of blood in the abdominal viscera, requiring excitation simultaneously with evacuation. Great fullness of the vascular structures of the abdominal viscera, requires excitation of the absorbent system, that the blood which is delayed in the portal and other veins of the intestines may be hastened forward, to be subjected to the agency of the function of the liver, or be impelled into the vena cava, and entering into the circulation, admit of a diminution of its volume, by blood-letting, and of rectification by the continued agency of the blood-making organs and functions. Cases of this sort re-

* It will be perceived by the reader, that reference is here had to such cases as require frequent repetitions of blood-letting. In instances of that sort, the ability of the system to react has to be regarded. This point being secured, commonly the shorter the interval between the times of blood-letting the better.

quire special attention to the condition of the skin and of the superficial veins. Sometimes a hot bath should be the first remedy; sometimes friction, with or without some heating liniment. In almost every case, after the bath or friction, sinapisms or epispastics, perhaps both should be applied extensively and continued until the action of the absorbents is waked up, so as effectually to reach the abdominal viscera.

In whatever manner different physicians may account for the operation of blisters, experience has fully demonstrated their utility in a great variety of affections. They are important in the treatment of all febrile diseases, although all great men have not been unanimous in recommending the practice. Dr. Fordyce rejected them, not only as useless, but as being pernicious. The experience of the profession, however, has been more than sufficient, to countervail the authority of this eminent individual.

Epispastics have not commonly been used in intermittents: they are sometimes, nevertheless, of great importance. Regard is to be had to the state of the skin, in this, as well as in any other form of fever. Experience has proved, that blistering the extremities, and between the shoulders, will cause quinine to succeed in many obstinate cases.

In idiopathic fevers, blisters are very valuable; but they must be judiciously timed, and made to act without intermission till convalescence is established. If there be organic disease with pain, blisters are particularly beneficial, to be associated with blood-letting, cupping or leeching, and other antiphlogistic measures when necessary.

Dr. Eberle says, that blisters are essentially of service, about the time that the symptoms which formerly were considered critical; such as increased action of some one or more of the functions, or the formation of an abscess; and that the blisters are useful at that stage, by producing an artificial crisis. They should be used only, however, he thinks, when the indications of a critical change are obscure or impractica-

ble; that during the time of a critical discharge, they are inadmissible. According to our theory, the proper time for commencing the use of epispastics in such cases, would anticipate the Doctor's rule, possibly by an entire week.

In visceral affections, the object is to relieve the oppressed organ, therefore we apply our epispastic, as near as we can, to the affected viscus, in order to profit by derivation. In delirium we blister the head, or the back part of the neck.

In all the varieties of phlegmasiæ, blisters are important. In acute pulmonic affections, they are indispensable. There is a difference of opinion as to timing them. Some say they are injurious if used before the necessary depletion; others say, they may be used from the commencement. We have shown that we may apply blisters, and then bleed while they are making their impression.

Dr. Armstrong intimates the impropriety of early blistering, as hydrothorax has resulted from the practice. If this disease did follow the application of an epispastic, it was not caused by the blister. We believe the effusion in such a case, to have been the result of insufficient blood-letting—counter-irritation had been relied on in cases, in which depletion ought to have been the principal remedy. In pulmonic affections, we commonly blister the chest. Some writers, however, recommend their application to the thighs and legs. We contend for making the application sufficiently extensive, and likewise continuous. Baglivi observes, that a difficulty in respiration and expectoration, which sometimes occur about the fifth or sixth day, will be relieved by two blisters applied to the legs and the thighs. This practice was recommended by Hippocrates; it is also noticed and strongly recommended by Van Swieten and others; to all of which we add that, if large enough, it matters not where they are applied.

In hepatitis, chronic and acute, blisters are beneficial, when any pain, or the state of the skin call for their use. In

enteritis and peritonitis, they are indispensable in almost every instance. In acute hydrocephalus we blister the scalp. In all these forms of disease, we let blood in the first instance.

In acute rheumatism we blister over the pain; sometimes in like manner, when the disease is chronic; so also in sciatica. Dr. Scudamore recommends blisters in the worst chronic states of neuralgic rheumatism. They promise less in these affections than in most other painful diseases. In gout, they are recommended by some and condemned by others. Rush and Musgrave recommend them, as well in gout as in rheumatism. Cullen and Scudamore consider them hazardous. When the skin shall have been neglected, and protracted disease shall have worn down the energies of the system, at length the irritation which attends on gout and rheumatism, so entirely employ the sensorial influences that the skin becomes greatly emaciated, and on careful inspection, will be found nearly as thin as parchment. A blister applied to such a surface, especially if of the dimensions commonly used in the days of Cullen, would produce a distressful sore, if not a dangerous sloughing. Not so, however, if blistering be judiciously employed from the commencement, so as to maintain a just balance of excitement.

In dysentery, we apply them to the abdomen and to the extremities. Cantharides are often too slow, and in cases requiring haste, we use dilute nitric acid, or Granville's lotion. In cholera infantum, blisters or rubefacients are necessary. This practice is too often postponed till the vitality of the skin is gone past recovery.

In exanthemata—confluent small pox and measles, especially when the eruption recedes, blisters are often greatly useful. Measles are said sometimes to fall on the breast or bowels—the effect of this disease on the cuticular surface, is such as to leave the capillaries in a state of great debility. A very little exposure to a chilling temperature, so entirely si-

lences the superficial excitement that a very dangerous introversion may suddenly follow such exposure; the consequence is, not a falling of the measles upon the thoracic or abdominal viscera, but a new inflammatory disease, the effect of exposure to cold. After measles have much enfeebled the patient, and in some low cases of typhoid fever, blistered surfaces are liable to run rapidly into gangrene, or to become sloughing sores. This is well explained by Dr. Armstrong, and it is the effect of debility.

Blisters are useful in erysipelas, as also is the alcoholic bath; and for the same reasons—they improve the condition of the skin.

Blisters arrest gangrene by exciting the action of the circumjacent surface. Cotunnius gives an interesting account of gangrene, consequent on putrid fever, in which the gangrene stopped about a finger's breadth below the margin of the blisters. Rœmer also admits their power in arresting gangrene. But we are indebted to Dr. Physick for our knowledge of the value of this remedy in gangrene. The blister should be large enough to cover all the sound parts in the neighborhood of the gangrene, which will be arrested at once, by this treatment.

Blisters are beneficial in some instances of hemorrhage, especially in epistaxis. In this affection we blister the back of the neck. This was proved by Dr. Robert Archer, of Norfolk, Va. The blister arrested the bleeding during its continuance—when the blister dried, the bleeding returned. The blister was then kept open for some time, and the patient was cured.

In the treatment of spasmodic affections, blisters often display very great effects. They are employed in tetanus, but to be useful, they must be very large in such affections. Dr. William Carter blistered the shoulders and the whole length of the spine. He also gave an active purge every second or third day, and cured his patient in less than three weeks.

Blisters have been much used in epilepsy. They are most beneficial, when the patient shows signs of irritation of the brain during the intervals; when the patient is dull and sleepy, and his pulse is small and trembling; some say blister the calves of the legs. Riverius and Piso blistered the scalp, and kept the blisters running. But there are many incurable cases in which blisters will do no good.

They are also useful in inflammation of the joints. They must be kept running a long time, associating rest and the necessary evacuations.

They may be used in treating an inflamed vein, an accidental disease in which Dr. Physick first introduced the practice. We protect the orifice with a plaster of simple cerate, then cover the whole of the inflamed surface, extending three or four inches from the orifice in every direction.

For painful incontinence of urine, blister the sacrum. Black and Richter blistered in herpetic affections. An incorrigible eruption sometimes takes possession of the face. Ambrose Pare narrates a case of this sort, so bad that it was considered to be elephantiasis. A blister was applied; it produced strangury, and the patient was cured.

PART IV.

PRACTICAL APPLICATION

OF THE FOREGOING PRINCIPLES.

PART IV.

An Anatomical Sketch, which is followed by a selection of Diseases, intended to exhibit a pathological and practical application, of the elementary principles which have been kept in view, in the preceding parts of this work.

CHAPTER I.

AN ANATOMICAL SKETCH, WITH PHYSIOLOGICAL REMARKS. INTRODUCTORY TO THE PRACTICE, &c.

The vascular system consists of three orders of vessels; arteries, veins, and lymphatics. The heart is the central organ, in which the large vascular trunks all unite, and from which they divide and ramify, as they are extended throughout the system. The sum of the calibres of the branches taken collectively, is greater than that of the trunks, calculated at their commencement. The circulation may therefore be said to form a cone, of which the heart is the apex and the smaller vessels the base. By this disposition, no important resistance to the action of the heart is felt by that organ, except when some one or more branches are in a state of congestion, or are otherwise diseased.

The sanguine vascular system consists of three parts. 1. Arteries. 2. Capillaries, a system of vessels having properties and functions, sui generis, peculiar to those vessels. 3.

Veins. Arteries conduct the blood from the heart to the capillary structures; and some are of opinion that by the power of the heart and arteries, the blood is propelled into and through these structures. Arteries have little if any sensibility. This opinion has the authority of Haller, Aysten, Bichat, Magendie, &c. Arteries have three coats. The external coat is cellular; the middle, which is the proper coat, is fibrous; the internal is serous. This last is liable to irritation. When mercury acts as a poison, it excites an inflammatory condition in this coat, which is found also to affect the heart.

Capillaries are the extreme ramifications of blood-vessels, in which the arteries terminate; and in which the first radicles of the veins have their origin. No line of demarcation can be drawn between them on structural principles; physiological and pathological facts demonstrate differences in their modes of action, and in their vital forces and functions. We therefore infer, there must be also dissimilarity in their structure. They are most irritable; and the irritability of any organ or structure, is in proportion to the amout of its capillaries. They are supplied with a degree of vitality, which enables them to sustain a circulation and perform functions peculiarly their own; and except that the heart propels the blood through the arterial trunks, and by that agency keeps up a supply for the capillaries, they carry on the circulation, in a manner independent of the heart. The capillaries of the external surface perform various functions. They secrete the material which is thrown off by perspiration; they develop and discharge carbonic acid gas; they divide the blood and lymph; they radiate heat and counteract cold; and they transmit the blood from the arteries over to the lymphatics and veins. All these actions and functions are known by induction only, since they cannot be seen, even with the assistance of a microscope. Mons. Dutrochet of France, and Dr. Jackson of Philadelphia, are of opinion, that

what is regarded as capillary circulation, is not performed by close vessels, constructed in tubular form; since the current of circulation obviously flows in every direction. Currents commence abruptly at points where in the previous instant, none existed. Moreover, by applying a mechanical irritant, the whole tissue under observation is made to assume the appearance of a mass of moving globules, passing on in every direction, with great diversity in their velocity, and striking off laterally into the surrounding structures. Therefore, say they, the blood, as circulated through the capillaries, is not confined in close vessels.

Let us imagine a portion of cellular structure, spread out like a piece of lace, whose threads are all little tubes, inosculating wherever their winding course brings them into contact, and anastomosing in every direction; let a number of such pieces of lace be laid one upon another, until the number of layers shall be considerable, and wherever the bending tubes of the one, shall come into contact with those of another, let them again inosculate and anastomose. Now let those little tubes be considered to be transparent; would not such a congeries of tubes, so united, afford opportunity for the blood to exhibit all the appearances above stated, by M. Dutrouchet and Dr. Jackson?

This capillary or molecular circulation, has a principal agency in the organic actions employed in most of the vital phenomena; sanguification; nutrition; calorification and secretion; all are dependent on it. The capillary circulation is the seat of sanguineous irritation, congestion, hemorrhage, effusion into the interstitial structures; whether sanguine, as in apopexies; echymoses; potechiæ; red indurations; carnification; hepatization; or serous and albuminous effusions forming dropsies; tubereles; white indurations, &c.

The lymphatic system is reticulated. Its vessels anastomose in infinite diversity of manner. Some terminate in the veins in the neighborhood of their origin; but the most of

them, in two principal trunks. They are found in all the organs except the brain, spinal marrow, the eye, the external ear and the placenta. Magendie says, they do not absorb, but receive the white particles of blood immediately from the arteries. And why not armed with the power of absorption? As the capillaries giving origin to the veins, take up the colored particles of the blood with its serum, &c., so those of the lymphatics take up the transparent particles, which constitute lymph. In their course, there are numerous glands.

A gland seems to be an interlacing of lymphatics with inosculating veins and nerves. These glands are more fully developed and better nourished in infancy and youth; therefore children and young people, are more liable to be affected with acute and chronic irritation of those structures. The glands are endowed with great irritability, hence scrofula and tubercles, especially of the lungs. Tubercles are consequent on chronic irritation of the lymphatics.

The capillary system is every where connected, and contains within it, the great mass of the fluids. A disturbance in one part, is felt to a greater or less extent in other parts, and sometimes an irritation in one part, will involve all the functions, so as to bring on disturbance throughout the whole. Probably this structure may be the portion of the system, which receives the impression and gives the direction and extension, to what is called in modern pathology, the irritation of continuity.

The blood may be accumulated excessively in one part and be derived from other parts. The capillaries of the internal mucous surface antagonize those of the skin, and the condition of these two sets may be in reverse states. Internal inflammations and congestions, are accompanied with torpor, atony or want of action, and with icelike coldness of the surface. Inflammation of the meninges of the brain, is attended with cold extremities.

Lymphatics are an annexation to the veins. They conduct a transparent fluid, which in its course through them, is nearly converted into blood, probably by an action assimilated to that of the capillaries. They have their origin in capillary radicles, in the intimate structures of the organs, and in the surface of the intestines. Monroe and Henderson considered them to commence with open or patulous mouths or orifices. Fohman, a German anatomist, was confident that in fishes they originate in a cul de sac. This is a matter of no importance, since it is a settled point, that all the animal membranes absorb fluids.

Cellular tissue is a white, spongy and soft texture. It is diffused throughout the whole body, uniting its various organs, between which it is interposed, surrounding and penetrating into their interior, and of course forming a part of their structure. If it could be presented alone, all other parts of the system being removed, it would exhibit the entire configuration of the body. The structure is lamellar and filamentous; is disposed into permanent irregular and variable areolæ, having a free communication with one another. In a healthy state it is thought not to possess sensibility. This we know to be an error. It is endowed with irritability, and is susceptible of vital contraction. It is the seat of anthrax and phlegmon, than which, few morbid affections give more pain, however limited in their extent; and when erysipelas phlegmonoides occurs in any case, we have irritation and anguish in perfection.

It is the seat of serous exhalation, and its moisture facilitates the movement of the organs and of such parts as are contiguous, and constitutes an essential membrane for each organ, enveloping its minutest particles, and determining its form and size. It isolates each organ to a certain extent from all others, and by this provision, perhaps, each one is in some measure defended from diseased action, which may

be prevailing in contiguous parts. Its serosity may accumulate, producing Œdema, when the affection is local, or it may be general, as in anasarca. It may be penetrated and infiltrated with air or gasses, constituting emphysema. An acute inflammation of this tissue, may produce lymph or gelatine. The tumefaction in that case, does not pit on the application of pressure. A tumid condition of this sort, is in a peculiar manner elastic, if subjected to pressure by the application of a finger.

With this sketch in view, we will take a brief notice of the general circulation of the blood.

The heart is the great central propelling organ, which is supplied with four cavities; two of these receive the blood, and two propel it. We will commence at the lungs. The blood collected by the capillaries throughout all parts of the lungs, flows onwards towards the heart, through the pulmonary veins, which are continually uniting and becoming larger, until they finally form four large vessels. These pour their contents into the cavity of the heart, which is called the left auricle. As soon as this auricle is filled, it contracts and presses the blood into the second cavity, which is called the left ventricle. This left ventricle, when it contracts, propels the blood into the great artery called the aorta.

The aorta passes over from the top of the heart to the spine forming a large curve, and gives off branches in its course, for the support of the arms, neck and head. Then descending down on the left side of the spine, behind the bowels, it gives off branches for the support of the thoracic and abdominal vicera; and in descending, near the hips, it divides into two great branches; one of which supplies each of the lower extremities.

All these branches go on dividing and ramifying, until they become capillary, and are extended to every part of the body, internal and external. And by the action of the capil-

laries, the blood is changed in its colour, from a lively red, to that which distinguishes the blood when drawn from the veins.

The blood collected by the capillaries is returned by veins, from all parts of the body towards the heart; and as they approach this organ, all those descending from the head and upper extremities, become united in one common venous trunk; and all those ascending from the lower extremities and the pelvis, are united in another. These two trunks are called the venal canal; which meet at the heart at an angle, and are united end to end, where, by a large opening, they pour their contents into the upper cavity on the right side of the heart. This cavity is the right auricle. When this auricle is full, it contracts and forces the blood into the lower cavity on the right side of the heart, or right ventricle. When the right ventricle contracts it propels the blood through the pulmonary artery and its branches, into every part of the lungs. In the capillaries of the lungs, the blood is subjected to the action of that organ and fitted for another round of the circulation. This done it returns by the pulmonary veins, to the left side of the heart, and proceeds on again; thus perpetuating the circle.

It will be useful to add in this place, a sketch of the anatomy of the portal vessels.

The blood that is distributed by the branches of the aorta to the abdominai viscera, does not return from the capillaries into corresponding veins, like that sent to other parts of the body. It is collected into an independent set of vessels, having a structure similar to that of the veins, except that they have no valves. These vessels unite and form a large trunk, which is called the portal vein, which passes into the liver, and its branches are distributed like arteries throughout all parts of this large organ. From the dark blood of this vessel, the liver secretes bile. When this function has been

performed by the capillaries of the liver, the blood thus freed of its bilious material, is conveyed into the vena cava and is there mingled with the general mass of the circulating fluids.

The vena porta is very distensible, and can bear much fullness, if it can be timely relieved. If it has no outlet however, but that which is provided through the function of the liver. If therefore the liver by any means should become very inactive, the yielding structure of the vena porta, may subject it to a degree of fulness, such as occurs in congestive fever. And a very inconvenient degree of distension occurs in almost all cases of intermittent and remittent bilious fever. The morbid fulness of the portal vessels is the cause of the soreness and distress felt in the abdomen in instances of fevers of this sort.

CHAPTER II.

FEVERS CONSIDERED.

Forty years ago, having then been engaged in the practice of physic about ten years, an honest nosolgist, we learned our first trustworthy lesson on the subject of fever.

A gentleman living in Campbell county, Va. had built his house on an elevated spot, in the midst of a very healthful neighborhood. To save the expense of erecting a kitchen, he dug away the earth on the south side of the house, forming a basement, three sides of which were considrably below the surface of the earth. The floor of the basement was laid on logs of post oak, with the bark left on them, except that their upper sides were hewed, that the boards might be neatly nailed upon them. On the side of this cellar kitchen, which was next to the fire place, three of the log sleepers had their largest ends turned to the upper side of the room. As these sleepers had no connection with the frame of the building, they were let down, each in a trench suited to its size. If therefore the earth were nearly level, when water should be permitted to fall into these trenches, it would flow towards the large end of the sleepers. The kitchen table, upon which the washing of dishes and the like were performed, and the tubs of the washerwoman were placed, had its station immedtately over the deep ends of these trenches. The slop-water therefore was sufficiently copious to keep the large ends continually wetted. The house had been standing in this condition twelve years, when, in the month of February, the ground being covered with snow, a most

alarming fever commenced among the blacks, who labored and slept in that part of the kitchen. The cook, a woman over thirty years old, had her bed placed within the distance of six or eight feet from the shop table. A girl of fifteen years, who assisted the cook, spent much of her time, and often slept at the fire, near the same corner. The washer-woman was engaged more or less of her time every day, also, in the same part of the kitchen.

The cook was the first victim. She complained of head-ache and not much additional inconvenience. Their master, as had been his custom when his people complained of indisposition, administered a dose of jalap and calomel. The medicine seemed to operate kindly, and the patient considered herself much relieved. The following night the girl was taken violently ill. Having been sent for before day, we arrived early in the morning, and found the case truly alarming. Excessive pain of the head, accompanied with a degree of heat of the scalp, and of the whole surface, such as we had never before met; excruciating pain of the back; distressing sickness of the stomach and vomiting; with a pulse about one hundred and fifty or more per minute. She was bled, and then affusions of cold water were applied to her head for several hours. Doses of calomel and ipecac. were repeated every second hour. In despite of these remedies, the pain of the head and back, and the heat of the surface continued incorrigible. After an interval of six hours, the blood-letting was repeated, the calomel and ipecac. and the affusions of cold water continued some hours longer. When, finding no improvement whatever in the case, we informed the gentleman that the prospect was hopeless.

Before leaving for the evening, we were requested to see the cook. We found her seated on a bench, holding on her knees a plate well filled with bacon and cabbage, with an ample supply of bread, of which she appeared to eat with an agreeable appetite. Her pulse appeared to indicate a hope-

ful convalesence. There was no febrile heat of surface, and very little thirst. We made a favorable report and set out for home. The next morning we were aroused before daylight, with tidings that the cook-woman was dead; the girl whom we visited the day before was much worse, and the washer-woman was also taken very ill.

On our arrival, having examined the patients, we informed the gentleman that the sickness was malignant and must have been produced by some ill conditioned material, which we probably would detect under the floor of the kitchen. On an examination we found the whole of the sleepers entirely decomposed, having left a black earthy deposite in the trenches, except only the large ends of the three before mentioned, as being near to the fire place. About three feet of these were in the condition of rotten wood, so soft, that when compressed in the hand, it would escape like dough, through the fingers. Its color was white, and its ordor was that of rotten wood only. We were standing and looking over the men at work, when the offensive material was first opened, and were seized abruptly with an exceedingly severe headache, which continued for half an hour, but gradually retired through the course of the day.

The whole mass of the rotten wood and water in which it had been so long steeped, were removed at once, in one large wash tub, not exceeding four or five bushels in capacity.

The cook-woman, who slept nearly over the pernicious material, died within forty-eight hours after her attack. The girl who assisted her, died on the third day, and the washer-woman on the fifth.

The cause of this fatal malady having been removed, the greater part of the family sickened, amounting perhaps to twenty cases; every case was marked with considerable vascular action; the degree of violence varying according to the occasions they had to visit the kitchen; the distances of their bed-chambers from the source of the poison, and the differ-

ent temperament of each. All required depletion. Some were bled once only, others twice, and some five times. All recovered without difficulty or delay.

Every grade of febrile action was exhibited, and the great and important truth demonstrated, that fever, in its essential characteristics, is a unit, and that its varieties are the effects of contingencies, of temperaments, &c. corresponding to the general views already submitted.

It is a source of gatification to us, that Dr. McIntosh, the distinguished Scottish lecturer on pathology and the practice of medicine, in Edinburg, entertains the same opinion on this subject. "After having watched the progress and termination of fevers in various climates, I have been led to conclude, that the nature and seat of fever are pretty much the same in all constitutions, in all climates, and under all circumstances. The leading difference being in intensity, and the rapidity with which some run through their course; being sometimes connected with inflammation, sometimes not; at other times depending on functional disorder of the body, and also upon the lost balance of the circulation.

CHAPTER III.

INTERMITTENT FEVER.

In the first part of this work we have given our views respecting the origin and nature of fever, where we had occasion to describe it in its intermittent form. To this the reader will please refer. It is there stated that debility first disables the capillaries of the skin, which become morbidly affected by the low temperature of cool nights, especially such as occur at the full and change of the moon, as also in times of cold and wet weather. The cold air serves to produce a stricture in the capillaries. When this error shall have existed a certain length of time, an exacerbation is the consequence. The chilly state of the system, thus set up, is accompanied by an introversion of the blood upon the abdominal viscera. If this occurrence should be frequently repeated, or if the chill should be at any one time greatly protracted, the portal vessels become impaired by the distention, and the blood by the delay of its circulation in the vena porta is deteriorated.

TREATMENT.

In treating a case of fever in this form, the management and medication must be accommodated to the existing condition of the patient. During the cold stage, the circulation through the lungs is in thraldom, This inconvenience may be lessened by administering a teaspoonfull of paregoric in a tumbler of hot lemonade, an hour in anticipation of the pa-

roxysm, or at the earliest notice of its approach, then let the patient be surrounded with bottles or small jugs filled with hot water, and be covered with a sufficiency of bed clothes. If he should be robust, and the anodyne seem to affect his head, as the chill is commencing, he should be bled from the arm, one pound or more. If the chill do not pass off in twenty or thirty minutes, repeat another dose of the paragoric and hot lemonade. If lemonade cannot be had, sage tea may be substituted. If the stomach be very sick, five grains of ipecac. may be administered and repeated every fifteen or twenty minutes, until it produce vomiting.

Bleeding in the cold stage, in a majority of instance, will cut short the disease. It will not only put a stop to the paroxysm, but in many instances it will effect a cure ; and particularly in those instances in which quinine seems to fail.

If the patient be languid after bleeding, apply the vapor bath, and continue the application until the reaction shall be complete.

Whilst the bath is in operation, and during the continuance of the hot stage, let the patient be indulged in drinking cold water, to the full extent of his inclination, and as often as he desires it ; but he must serve himself with a tea-spoon.

If there be much heat in the head, make an application of cloths well wetted with cold water, changing them often enough to keep them cold. If he suffer from general heat, wet his skin with a sponge filled with cold water and alcohol, laying off a part of his bed clothes. When the sweating stage commences, be careful to prevent his being chilled by the sweat. Let him have a napkin in hand, and, if necessary, let an assistant aid him in wiping away the sweat as it accumulates on his skin. Let the wiping be performed with energy, so as to cause considerable friction. When this application shall have been pretty well accomplished, let the patient rise out of bed, be seated at the fire, and his linen be changed. The wet sheets or blankets ought all to be re-

moved. Then place him in a dry bed, covered with the usual amount of bed clothes. Having made all these preparations, let him take one or two grains of quinine every second hour during the succeeding intermission; at the same time using one of the compound blue pills, every third hour, until his bowels shall be suitably affected.

About six hours in anticipation of the next paroxysm, apply the vapor bath in the usual manner. If there be a return of the paroxysm, meet it a second time as above directed, regarding all the instructions as before, except only that the blood-letting may be omitted, if a stricture across the breast, or a pain in the head do not recur. After the chills shall have retired, and the patient appears to be convalescent, four or six doses of the quinine should be continued daily for several days, to prevent a relapse.

As a feeble state of the skin is the condition which subjects persons to attacks of intermittent fever, the inhabitants of those regions where intermittents prevail, should be careful to keep up good fires every morning and evening throughout the sickly season, and all the day long in wet and cold weather. Laborers and others, in circumstances requiring unavoidable exposure to cold and night air, would do well to protect themselves by taking a cup of hot coffee, or some other hot beverage, on going out, and should not fail to avail themselves of a good fire on coming in, before retiring to bed.

CHAPTER IV.

CONGESTIVE FEVER.

This is a fever, in the most severe form of which, the pulse and the heat of the skin are generally below the natural standard. In slighter cases, the extremities are cold, or have a tendency to be cold, while the heat of the trunk of the body is increased. The most perfect examples of congestive disease are exhibited in those individuals, who die in the cold stage of intermittents and yellow fevers. This form of the disease, like all instances of indospathic fevers, advances insidiously. The patient is threatened with indisposition for ten days or a fortnight, perhaps three weeks, previously to the time of his confinement to his bed. His appetite is gradually impaired, his bowels irregular; he complains in the mean time of alternate chills and flushes of heat; till at length the alarming chill fastens on him. In mild cases, the heat of the skin is diminished, the pulse weak and oppressed, beating perhaps fifty or sixty to the minute; great prostration of strength; tongue moist but loaded with lymph; the patient dull and sleepy, but can be roused; his sensibility evidently diminished; he complains of giddiness, confusion of intellect, heaviness, pain, or a sense of weight, at the crown of his head or his forehead.

According to our view of the course of events which occur in fever, the head is first affected. There may be complications. After the fever is fully established, in the early exacerbations, the violence of the action may fix congestions on the lungs, or the universal langour of the circula-

tion may, by the remora, fix venous congestion on the liver and portal vessels.

When a fever of this sort is about to terminate fatally, it is marked by a peculiar expression of countenance; it looks besotted; in the manner of the patient there is an appearance of carelessness; his speech slow; his eyes look dim, and seem partly insensible to light. If he attempt to walk, he staggers like a drunken man. In very severe cases, the patients are unable to stand on their feet, or even to lift their hands to their heads. A sensation like a great load is felt at the pit of the stomach. The respiration short, quick, and weak. The patient becomes more and more insensible; picks the bed clothes; lies on his back, constantly sliding down towards the foot of the bed; his breathing becomes more difficult; his complection takes on a leaden hue; sometimes convulsions occur about this time, and sometimes vomiting; soon involuntary stools follow, and he dies.

TREATMENT.

In this, and in every form of fever, it would be greatly important that the disease should be arrested in its forming state. When this shall not have been done, the case must be treated according to circumstances. If the patient be in the state of chill, make large applications of mustard. Cover his breast, abdomen, and his upper and lower extremities with mustard plaisters, or wrap him in a blanket wet with alcohol and spirits of turpentine, then lay bottles or jugs, filled with hot water around him on both sides. As there shall be appearances of reaction, tie up his arm carefully, open a vein, then administer large doses of quinine every hour. If the blood-letting be in time the reaction will be secured, and the patient rescued from death.

After this shall have been accomplished, the case will assume a simple form, and may be treated subsequently as if it were an ordinary intermittent.

The reader may have noticed the fact, that the vapor bath, which is a most potent agent in exciting and giving establishment to the action of the capillaries, is not advised for correcting the chilly state of fever, either in its intermittent or congestive form. It is not recommended because it is too powerful a remedy in such cases. When the capillaries are inactive, and the vitality of the skin is too much reduced, whilst at the same time the viscera are in a state of congestion, the general circulation of the blood cannot be made to reach the blood-vessels of the skin, within the necessary time to protect them against the great stimulant power of heat. Under such circumstances, the intended remedy would still more diminish the vitality of the surface, and instead of being beneficial, in most instances would be greatly injurious. This is an important fact, which ought to be kept in view in every instance, when the alcoholic vapor bath is employed in treating disease. And it may be put down as a general rule, that the bath, if appropriate, will be more or less agreeable to the patient. So also, if it be oppressive, some auxiliary measure is required in order to insure success.

CHAPTER V.

INFLAMMATORY FEVER.

The symptoms common to fever, are present in a case of this sort. There will be heat, much greater than what is natural. The pulse will be strong, tense, and frequent, and ordinarily, there will be pain. It commonly commences with some degree of rigor. The patient feels drowsy, but cannot sleep. He is languid and weak. His appetite fails. His tongue is moist and loaded with fur, but soon becomes dry; and he suffers from great thirst. He complains of general soreness, headache and pain in the back, which are often accompanied by nausea and vomiting. These appearances progress with various modifications; becoming more and more intense; the patient meantime is more restless, till eventually, he is delirious at night.

The symptoms vary, however, according to the organ principally affected.

If the brain be the seat of inflammation, there will be a difference in the symptoms, when the membranes including the brain are the structures affected, and when the substance of the brain itself is the seat of morbid action. If the disease be seated in the membranes, there will be delirium attended with unnatural increase of strength; insomuch, that it will be difficult to keep the patient in bed. His countenance will be fierce; his eyes red, with contracted or dilated pupils; he will complain of headache, or there will be some sign by which it may be seen, that he feels pain in his head. If the case be permitted to progress without correction, his

face may become pale; his pulse irregular; his tongue dry and continually in motion; his tendons may twitch; perhaps he may pick the bedclothes. If he be young, he may have convulsions. He seems sleepy, but his sleep is comatose; his pulse, which was weak, becomes slower; then varies; is irregular and intermits. His sleep becomes more profound, and he dies.

If the substance of the brain be inflamed, the heat of the skin will not be increased. The pulse will be lower than natural; it may not exceed sixty or fifty in a minute, and even slower than fifty. The extremities may be in motion or not; they may be rigidly contracted, particularly the forearms; or they will become contracted the moment the arm is touched, even if it be to feel his pulse. The pupils of the eyes are dilated, and the eyelids half or feebly open; sometimes one is shut and the other open; the tongue is moist till towards the last stage of the disease.

In both varieties, the breathing is very nearly in the same state. The bowels generally are confined; and when it is otherwise, the stools are involuntary; which, as well as his urine, are passed in bed. Sometimes, however, the bladder is insensible and becomes greatly distended.

If the lungs be affected with inflammation, breathing becomes laborious; sometimes there will be cough with more or less expectoration; sometimes a feeling like rawness under the breast-bone and in the wind-pipe incommodes the patient; sometimes a stitch in the side is felt, especially on taking in a very full breath.

If there be inflammation in any of the viscera of the abdomen, or of the lining of that cavity, there will be pain in that region, which will be increased on making pressure with the hand; it must be remembered, however, that when the mucus membrane is the seat of the inflammation, often, little or no pain is felt, even on pressure. The patient inclines to lie in a position, so as to relax the muscles of the abdomen;

there will be more or less tympanites, with considerable heat in that part of the body; there will be nausea and vomiting; insatiate thirst; the tongue is often furred, with an elevation of the papillæ; or it is covered with small ulcers or numerous fissures; or it may be red and glazed; or it may appear as if skinned, with or without patches of white fur; when any of these appearances occur, we safely conclude, that the lining membrane of the alimentary canal is in a diseased condition.

TREATMENT.

In this form of fever, and indeed in all others, it is vastly important to have recourse to proper treatment as early as possible. The congestions which set up or accompany the irritation, are continually growing worse, extending and involving greater surfaces or larger portions of structure, every moment.

If taken in time, decisive blood-letting once or twice repeated, aided by the equalizing power of the vapor bath, will generally put an end to the disease. All medicines calculated to irritate the stomach or bowels are pernicious. The effervescing draught, or a solution of the citrate of potash, if acceptable to the patient, will commonly be useful. Two drachms of this article may be dissolved in six ounces of water, a little sweetened with sugar; and half a table spoonfull, or twice that quantity, may be taken every two hours. Cloths wetted with cold or hot water, may be used as there may be occasion;—cold cloths to the head, hot cloths to the chest or abdomen or both. The hands and feet may be frequently bathed in hot water; and if the patient be not much relieved by a second bleeding, apply a large blister, eight by ten, or ten by twelve inches square, over the region of the stomach, which ought to be renewed as soon as a tendency to heal is exhibited, thus making it continuous, till the patient shall be recovered. If the case seem to linger, let a moderate

use of the bath be repeated, every morning and evening, comforting the patient with some suitable beverage, according to the instructions given respecting the use of that agent.

If symptoms indicative of a protracted irritation of the membranes of the head, or of the brain continue in defiance of the general treatment above recommended, let his head be shaved and a large blister applied over the whole scalp, and if necessary, repeat it, till those symptoms disappear.

The diet should be light and fluid. Barley water; rice gruel; two milks whey; afterwards, chicken water; thin broth with rice and such like preparations; gradually increasing the quality and quantity of his nourishment, in a manner corresponding to his progress in convalescence. During the whole course of the management, his bowels may be kept in comfortable condition, by repeating two or more mild injections, every twenty-four hours. The injections may be made of very thin broth a little salted, or of thin gruel seasoned in like manner, adding a table spoonful of lard or sweet oil.

CHAPTER VI.

CATARRH.

When a patient is seized with chilliness, followed by sneezing, slight fever, impaired appetite, hoarseness, occasional loss of voice, and a cough; he is said to have catarrh, or a common cold. His bowels are out of order, and he has an exacerbation of fever and difficulty of breathing at night. The cough is sometimes slight; at others severe. A slight degree of wheezing is heard, and the disease has a salutary termination in a day or two, by expectoration of mucus, which is discharged by occasional fits of coughing.

Sometimes the disease is confined to the mucous membrane of the nose, and frontal sinuses, and is then known by the common name of "cold in the head."

When catarrh is a general complaint, attended by considerable prostration and constitutional symptoms, the disease has been denominated Influenza. In this modification of catarrh, there is a greater fullness of blood, and a greater thraldom of the circulation, in respect of the capillary vessels of the lungs.

Catarrh is a slight, sub-acute, inflammation of the mucous membrane of the nose, frontal sinuses, the larynx and trachea. If the membrane which lines the bronchial tubes be affected with a similar inflammation, it may be called bronchitis, an affection which has often passed by the name of catarrh.

Causes.—Exposure to cold, particularly alternations from heat to cold, with insufficient clothing.

It would appear to be of no consequence how cold the air we breathe, provided the surface of the body be properly protected. It occurs most frequently, and prevails most extensively in autumn. A great proportion of the people about that season of the year, indulge in hearty eating. They do not feel themselves compelled by the weather to put on winter clothing; the temperature of the atmosphere, although not painfully cold, so as to compel them to use fires, is, nevertheless sufficiently sedative to diminish the action of the superficial capillaries; in course to suspend perspiration and the other functions of the skin. The vitality of the mucous surfaces is elevated to the degree preparatory for producing irritation. The reaction which follows is accompanied with the symptoms of catarrh; and the case will be more or less severe, according to the existing irritability.*

TREATMENT.

In slight cases, one or two applications of the alcoholic vapor bath, followed by a moderate cathartic, will be found all sufficient for the cure. In cases more severe, especially if there be pain in the head, or a sense of soreness or tightness of the chest, the patient should be bled decisively. After blood-letting, he should be treated with an application of the bath, which should be followed by a purge of calomel, say five or ten grains, and twenty grains of jalap, or instead of the jalap, after an interval of three hours from the

* To prevent catarrhal affections, begin early in the autumn to have a brisk fire, morning and evening; and in wet weather delicate persons and invalids should keep up their fires throughout the day.

time of taking the calomel, he might take two tablespoonsfull of castor oil. The succeeding day, if the symptoms continue to be distressing, let the bath be repeated. If the sweat afford pleasant relief, nothing more may be necessary. If, whilst under the influence of the bath, the head ache, or the tightness across the chest should return, or be increased, immediately after the use of the bath, have a second recourse to the lancet, and give another gentle cathartic, and in a large majority of cases this treatment will be all that will be necessary. The practice may be similar, whether the case be simply a catarrh, or be in some degree complicated with sympsoms of bronchitis.

When delicate persons, particularly those of the fair sex, subject themselves to such exposure as is commonly followed by catarrh, they should never postpone the necessary means of correction. Thousands by such neglect of themselves, have permitted irritations to be established, which have ended in that fatal disease, consumption.

CHAPTER VII.

BRONCHITIS.

There are two modifications of this disease; acute and chronic. The acute form of bronchitis "commences with some degree of chilliness, succeeded by signs of fever, hoarseness, difficulty of breathing, with a dry cough, tightness, or a sense of stricture in the chest, and oppression in the region between the heart and stomach; prostration of strength, the tongue coated with lymph, and the bowels costive. An exacerbation is almost always observed at night. In a day or two, expectoration takes place, which relieves the patient for the time; the respiration becomes more difficult, but the cough bears no proportion to the difficulty of breathing; the tightness about the chest is increased with a sense of suffocation, and the pulse becomes very frequent. The deadly paleness or lividness of the lips and cheeks, becomes more and more anxious; and the patient frequently requests to be raised and to have more air. A loud wheezing may now be heard, even at a great distance from the bed side. The voluntary muscles of respiration are brought into play. The patient becomes insensible; a rattling is heard in the throat, the extremities and face becomes cold and livid, a cold perspiration bedews the skin, and death soon closes the scene.

Sometimes the head is seriously affected. When this is the case, there will be much complaint of head-ache. It is an insidious disease, and in the cases the most dangerous, although the oppression in the chest is more or less considerable, there is neither heat of the skin, pain, nor much febrile

movement in the pulse. There is such an apparent absence of fever, that too often no alarm is taken, till the patient is threatened with suffocation, or some organic mischief is done; and then it is too late.

The disease is very fatal in infancy and childhood. It commences in such subjects in the same manner as in adults; like a common cold. The breathing becomes oppressed; is performed with great effort, the shoulders are in constant motion, as well as the nostrils, and the abdomen becomes more prominent, by the increased action of the diaphram during inspiration. A sore throat frequently accompanies the disease, and the child suffers so much pain during the act of coughing, that an attempt is made to suppress it; a wheezing soon takes place, which is more decided than the difficulty of breathing; expectoration is generally followed by mitigation of suffering, which continues for a longer or shorter time, till more phlegm is formed.

The mucous secreted in the air passages, is frequently discharged by spontaneous vomiting, exactly as it occurs in whooping cough. Children under four or five years of age, cannot be made to spit up the phlegm; they swallow it, after it has been discharged from the air passages. Children refuse food, but drink greedily, until the disease is far advanced, when they cannot take a long draught for want of breath.

An infant at the breast sucks pretty well during the first stage of this affection; but subsequently, although it seizes the nipple with avidity, it cannot suck for any length of time, perhaps for not more than ten or fifteen seconds, when it will be observed to bite the nipple very forcibly, and discontinue sucking; it will cry, throw its head back quickly, and continue in this position for some time, even after the cough has produced the expulsion of the mucus. If the disease remain unsubdued, the difficulty of breathing increases; the face has a livid appearance, the skin becomes cold, the

extremities sometimes swell, and the child dies from suffocation. In all affections of the lungs, particularly in the acute, the bowels become constipated, and the evacuations fœtid.

The expectoration in bronchitis, is at first scanty and viscid, particularly so in the most acute cases; by degrees it becomes more copious and less viscid, and therefore more easily expectorated; till at last it is discharged in considerable quantities, having the appearance of starch mixed with small bubbles of air, and occasionally streaked with a little blood, or is discharged in the form of pellets or small lumps. If the case go on well, the expectoration gradually diminishes and becomes slightly yellow in color; the patient is troubled with the cough and expectoration, in the morning only; at length they cease entirely. Sometimes, however, the acute disease runs into the chronic form.

TREATEENT OF ACUTE BRONCHITIS.

"This depends exactly upon the period of the disease, the extent of the morbid action, the state of the cough, the expectoration and the previous health of the patient. Bleeding is certainly not necessary in every case of bronchitis which comes before us; particularly in one that is slight and confined to a small part of the lungs; but if the whole lung be affected, and more especially when both organs are implicated, bleeding is to be had recourse to, early and decidedly." If the case be slight, very often one decisive application of the alcoholic vapor bath will effect a cure, or at the least so change its character, as to remove the bronchitic symptoms, and place the system in the condition of simple catarrh; or if the case be more severe, and there shall exist any doubt respecting the necessity of blood-letting, the use of the bath will make the case plain and easy.

Dr. McIntosh says "bleeding is a very doubtful remedy, when the second stage is far advanced; and highly injurious

in the last." This is true according to the experience of the profession; and the cause of the uncertainty and danger, is at hand. As the function of the lung becomes impaired, the capillaries of the external surface become more feeble, and their functional action is lessened, so that there is a very early tendency to dissolution.

If under such circumstances, the vitality of the capillaries should be still farther reduced by blood-letting, they may fail to react and the patient will be lost. If, however, in such doubtful condition, the alcoholic vapor bath be used, the capillaries are reanimated, the arterial action greatly improved, and any existing necessity for the use of the lancet will be readily detected. And for producing this powerful and beneficial effect, the bath is of the utmost importance. The Doctor says, "I know of no disease more under management by any remedy than bronchitis is, by bleeding, if performed in the first stage, or during the first part of the second." The use of the bath places the capillaries in the condition, which insures the happy effect of blood-letting. "Many assert that bronchial inflammation will run through a certain course in spite of every remedy; and it will, if the inflammatory stage should be nearly over, before discovered, or if bleeding be not used in a decided manner," or if the vapor bath be not used in its proper place. "Although late bleedings are to be especially condemned in this disease, yet cases do occur, where the lungs become suddenly congested with blood, in which a well-timed venesection is of signal service."

"In the first stage of bronchitis, when both lungs are extensively affected, one bleeding will in general suffice." And the more certainly, if it be preceded or followed by the use of the bath. "And we need not be afraid to carry it nearly to fainting, as long as the air passages are freed from mucous; but after it has collected in considerable quantities, (and I mean my remarks to refer more particularly to double bronchitis,) sudden death may be the consequence, by robbing

the patient of that strength, which is required in coughing, to produce expulsion." In such circumstances, the bath ought to precede any attempt to use the lancet.

And if the action of the heat, by expanding the external capillaries be attended with much inconvenience, the operation should be suspended, five or ten minutes, and then be resumed and continued in a moderate way;—gradually increasing the heat, as the patient can bear it, till it produce its full effect; after which he may be bled with much benefit, in cases in which the practice would be fatal without the bath.

In bronchitis we can scarcely ever determine the necessity or propriety of bleeding, by the ordinary signs; because in some cases, the disease may be very extensive without violent symptoms; in others it may be very slight, and the symptoms very severe, owing perhaps to a disordered state of the stomach and bowels, or to some other, perhaps slight cause; and it is of great consequence to know when to desist from further depletion. After becoming acquainted with the powerful effect of the bath in treating such cases, all these difficulties are greatly diminished, and the management of such affections is made easy, even in the hands of young physicians. In some instances, in cases of infants and young children, it is difficult to bleed from the arm. When this inconvenience occurs, it may be necessary to use cups or leeches; and we will add, cups in peference to the leeches.

"Next in point of importance to blood-letting, in pulmonary inflammation, stands antimony as a contra-stimulant." So says our excellent author, Dr. McIntosh. So said Cullen, Fordyce, &c. It is in like manner the opinion of the most enlightened of the faculty. And antimony is so generally beneficial, because it serves to prevent the accumulation of sensorial influence, which is consequent on blood-letting, and which would produce a reaction, marked with more power, than is consistent with the safety of the structures, when in a condition which may require depletion. If blood-letting be followed by an appropriate application of the alcoholic vapor

bath, the effect of this powerful agent on the capillary structures, will prepare the way for the antimony; and the arrangement of medications, made according to this order, will be found more efficient. Moreover blood-letting will be found to be admissible, and the agency of antimony useful, if the bath be used also, in many instances in which their effect without the bath, would be deleterious.

Colchicum has been highly recommended in this disease, and the effect of it is sometimes very serviceable.

"Emetics are very useful in the first stage, and are absolutely necessary in the last, in order to clear the air passages, when the cough fails to do so; and are more particularly serviceable, in childhood and infancy.

The patient's bowels should be moderately free, but decisive purging may produce injurious prostration.

"Expectorants and [the common] diaphoretics are more injurious than beneficial, except perhaps in chronic affections."

"Opiates are sometimes useful in the first stage, after the violence of the disease has been reduced by the lancet. In the last stage also, when there is considerable irritation and violent cough, which, if not mitigated, keeps the patient from sleep and wears him out."

Blisters, when, in consequence of the depletions which may have been found necessary, the skin is too much disabled to maintain the action of its capillaries, without the aid of contra-irritation.

Special attention should be paid to the condition of the skin, particularly to the temperature of the extremities, during the whole period of the disease; and the bath should be repeated, as occasion may require. The circulation of the blood should be continuously kept conspicuous in the vessels of the surface. The diet of the patient should be very light, avoiding every thing stimulating, until all inflammatory symptoms shall disappear. The patient should be kept quiet in bed; every exertion should be avoided; even the exercise of the voice is injurious.

CHAPTER VIII.

CHRONIC BRONCHITIS.

"Like other chronic inflammations, this affection sometimes succeeds to an acute attack; sometimes, however, it takes place as a slow and insidious inflammation of the bronchial membrane. This form of the disease may affect individuals of all ages; but it is most frequently met with in old people, and those who, by occupation, are exposed to the inhalation of dust. It sometimes succeeds also, to the eruptive fevers; and frequently coexists with diseases of the heart.

"It is occasionally mistaken for phthisis pulmonalis, and is one of the morbid conditions of the organs within the chest, which give rise to the symptoms denominated asthma; and is likewise, a frequent cause of dropsical affections.

"When the disease succeeds to acute bronchitis, the fever declines, but the pulse for some time continues frequent; the cough and difficulty of breathing continue, but they are always relieved for a considerable time after a free expectoration. The patient still has night exacerbations, and disturbed sleep; which, however, gradually decline with the disease. The expectoration still copious, becomes opake, yellow, sometimes puriform, and has occasionally a greenish hue; at last it diminishes in quantity. The appetite returns; and although weakened by night perspirations, which take place during the day also upon making the least exertion, the patient is sensible of gaining some strength. Gradually all these symptoms cease, and some individuals seem to recover perfect health; but in general throughout subsequent life,

exposure to night air, an easterly wind, or a hurried atmosphere, occasions a renewed attack; and with many, the same effect is produced by eating indigestible food, or by neglecting the bowels. Now and then, therefore, they become indisposed; the voice becomes hoarse; the cough short and croupy; with more or less oppression in breathing, attended sometimes with febrile symptoms.

In the chronic form of the disease, the expectoration takes place in a much shorter time from the commencement of the indisposition, than in the acute; sometimes in a few hours; it is viscid at first, but soon becomes copious; and the patient is relieved by the discharge. One attack leads to another, until at last, the individual is always affected with some degree of difficult breathing; he is almost constantly coughing and spitting; and is unable to lie in the horizontal posture; he feels great difficulty in mounting a stair, and is said to have an habitual asthma.

"In acute and chronic forms of bronchitis, cases now and then present themselves, in which the expectoration is very small in quantity. In this form, it has been denominated dry catarrh, and dry asthma."

TREATMENT OF CHRONIC BRONCHITIS.

Patients affected with this disease are liable to sudden attacks of acute inflammation, sometimes too, of congestion of the lungs, and sometimes, individuals become dropsical.

In any such cases, general bleeding is commonly necessary. After blood-letting, apply the bath, so conducting the process as to make the application gradual. This will restore the vitality of the external capillary structures; which done, will give the lungs the benefit of the restored functions of the skin, and do much in aid of the recuperative tendency which blood-letting will have set up, in the bronchial vessels.

The same should be repeated once or twice every twenty-four hours, for two or three days.

If the symptoms should be at all obstinate, administer an emetic, say finely powdered lobelia inflata twenty grains; ipecacuanha twenty grains; hot water four ounces. Of this give two table spoonsfull, and repeat one half the same quantity every fifteen, twenty, or thirty minutes, until it operates. This treatment might be repeated with advantage as often as the paroxysm shall recur, especially every night. It will greatly relieve respiration, and procure for the patient rest and sleep. If the difficulty of breathing return in the morning, repeat the emetic, for the better effect of which the patient may be prepared by a moderate repetition of the bath.

In some cases the syrup of squills is useful; in doses of a tea spoonfull repeated every two or three hours. As often as there shall be apprehension of a return of an attack, let the patient retire to bed, take a bath, and follow it by a dose of lobelia and ipecacuanha as advised above, and in most instances the paroxysm will be prevented. Perseverance in this mode of treatment will often effect a permanent cure.

CHAPTER IX.

INFLAMMATITION OF THE LARYNX.

"This disease has a very close analogy to croup." It is a very common cause of death, in small pox and scarlet fever; and sometimes it follows measles. "When this disease occurs in the acute form, it is known by a painful sense of constriction in the throat, which is increased by pressing the larynx. Speaking aggravates the pain, as does swallowing. The voice is hoarse; the breathing soon becomes laborious and shrill, during the act of inspiration; there is considerable heat of skin; thirst; frequency and tension of the pulse, and great anxiety. On looking into the throat, the fauces frequently appear to be swollen and turgid, and of a dark red color, or coated with lymph; but this affection of the throat is not peculiar to laryngitis, or an inflammation entirely confined to the larynx. In some cases the epiglottis is involved, which renders the motion of the tongue painful. The patient is constantly hawking, in order to clear the air passages, and occasionally spits up a small quantity of thick tenaceous mucous. As the disease advances, the face becomes swollen and turgid; it frequently has a livid appearance, and life is quickly destroyed by suffocation. Convulsions occasionally precede death. This disease sometimes runs its course, in from thirty-six to forty-eight hours." The treatment proper in this affection, is so nearly similar to that which is proper in a case of spasmodic croup, which will be our next chapter; that it is not necessary to say more than that the same course may be pursued till the patient shall be relieved.

CHAPTER X.

CROUP.

This disease is of frequent occurrence among children residing in damp, bleak situations, on the sea coast, and in many places in the United States, which are considered healthful. It consists of an inflammation of the lining membrane of the trachea, and is often complicated with bronchitis and laryngitis, the one running into the other, so much so, that frequently they cannot be distinguished.

It is a disease almost peculiar to infancy and childhood. Inflammation of the larynx and bronchial tubes, occurs at all ages; croup seldom occurs to any after twelve years of age. One attack predisposes to another, but as age advances, this susceptibility goes off.

Croup has been divided into three species: acute, chronic and spasmodic. It usually commences like catarrh, the symptoms being more or less severe, with some degree of fever preceded by chilliness; the voice soon becomes hoarse; febrile symptoms increase; and in a day or two the breathing becomes more and more impeded, particularly during inspiration; at least the inspiration becomes stridulous, and the voice shrill; a harsh dry cough exists from the beginning, and when there is any expectoration, it has more or less of a muco-purulent appearance; sometimes small masses of lymph are discharged, which occasionally resemble portions of false membrance. As the disease advances, the expression of

countenance becomes more anxious; the lips and cheeks have a livid and swollen appearance, alternating with a deadly paleness. The pulse is frequent and small, and sometimes intermits. There is a prostration of strength with great restlessness; although the surface of the body be generally speaking hot, the extremities are frequently cold; at last, the body is covered with a cold clammy sweat, and the child dies of suffocation.

The cause of the disease is various; sometimes children are cut off early, as if merely by want of breath, but in general, it lasts from two to three or four days. In chronic affections of the trachea, the symptoms are less violent and urgent, it is longer in progress, but the symptoms are the same; the breathing difficult and stridulous, and the voice shrill.

It is in the chronic form of this disease, that the false membrane is sometimes formed in the trachea. This form comes on insidiously. The patient is considered to have taken cold in the common acceptation of the term; there is a slight difficulty of breathing, from the increased vascularity or congestion of the mucous membrane, producing a thickening of the membrane, and consequently a lessening of the calibre of the wind-pipe; gradually the same surface, in its extensions throughout the bronchi and air cells, becomes more and more congested, secreting a very viscid mucus, which becomes more and more dense, till the bronchi are choked and the child dies.

TREATMENT.

"This disease, of all others, requires promptness and decision, and activity in practice; for if the false membrane be allowed to form, not above one case in the hundred will be saved. The worst instances are those in which a sore throat

has been neglected, and the inflammation has spread into the wind-pipe; or those in which patients have labored under bronchitic symptoms for a week, or perhaps longer, before the disease has affected the trachea and larynx." Such cases are almost always fatal, and to these M. Bretonneau gave the name, diphthrite. When a child is attacked by this disease, it should be bled without delay, and to such an extent as to make a decisive impression. The blood-letting should be immediately followed by an effectual use of the bath. If the bathing be not completely satisfactory, it should be followed by a dose of the tartrate of antimony; two grains of which may be dissolved in two ounces of water. Of this preparation, a teaspoonful may be given every five or ten minutes, till its emetic effect shall be complete. Sometimes it is difficult to produce vomiting. In such an instance, the antimony should be used nevertheless. As a counter stimulant it is greatly beneficial, though it should uot produce its emetic effect. After a free use of the antimony, and the stomach shall have become quiet, two, three, or four grains of calomel should be given every second hour, so as to introduce from thirty to sixty grains in the space of twenty-four hours. When five or six doses of calomel shall have been administered, if the child should not be greatly relieved, repeat the bath, apply a large blister over the region of the stomach; and whilst it chall be making its impression, repeat the emetic, which may be again followed with five or six doses of calomel. This kind of decisive treatment will commonly be successful, if commenced and carried out before the false membrane is formed—after its formation, it is useless to torture the child with any severe remedy.

When the patient is less than eighteen months old, and it shall be found impracticable to bleed it from the arm, recourse should be had to the employment of leeches, a suffi-

cient number of which should be applied to the child's throat and neck, up and down the course of the trachea; six, eight, ten, or more, so as to make a complete impression. The lancet however is greatly preferable, inasmuch as it produces the necessary effect more promptly; and the suddenness of the shock not only makes the effect more visible, but on that account it is more useful.

In that form of the disease which has been called spasmodic croup, it will be found that the use of the bath alone will often afford relief, and that the addition of blood-letting and an emetic will be completely effectual in almost every instance. It should be remembered, however, that no delay is admissible in a case of this sort, as death may ensue within a very short time after the attack. In a word, no case of cold, threatening bronchitic or croupy symptoms, should be avoidably neglected; not even for one hour.

CHAPTER XI.

HOOPING-COUGH.

This disease, in its commencement, is almost always confounded with a common slight cold. The time how long this mistake continues, varies very much; in general it extends through ten or twelve days. The cough, meanwhile is dry; there is occasionally a sense of constriction in the chest, and a feeling of weight in the head. "The eyes are sometimes a little swollen and red, with frequent sneezing and involuntary tears; in many cases there is little or no fever, exeept in the night; the bowels generally are out of order. We sometimes suspect the disease to be hooping cough because it is epidemic at the time, or because we notice the convulsive appearance in the paroxysm of coughing. At last the cough assumes a peculiar character; when this takes place, the disease is said to be in its second stage. It is characterized by a long and sonorous inspiration, producing a peculiar shrill noise, which is termed in common language, the whoop; to which succeeds an expiration which is broken by frequent fits of coughing. No one that has seen the disease when fully formed, can mistake it. When the cough commences in slight cases, the features become a little swollen, the face red, the eyes suffused with tears; the cough, which is often interrupted by a long inspiration, is hoarse, the paroxysm ceasing with an expectoration more or less copious, frequently assisted by the act of vomiting, which discharges the contents of the stomach. As soon as this is accomplished, children are commonly able to return to their usual amusements, and appear to suffer little or nothing un-

til towards the period of the next paroxysm. The appetite is in general good. The expectoration is at first slight, scanty and viscid; but if the disease go on in a favorable manner, the discharge becomes more copious and less tenaceous. Young children scarcely ever spit out the expectoration, unless during the act of vomiting; it generally is swallowed as soon as discharged from the air passages. The patient generally is warned of the approach of the paroxysm by a greater or less degree of chilliness on the surface, and a tickling in the throat, immediately succeeded by a sense of tightness both in the larynx and chest, and a dread of suffocation, which induces him to fly to his nurse, or to lay hold on any thing within reach for support during the fit. Others seem to derive relief from lying all-fours on the floor, and when the discharge has taken place, they jump up and run about. In more severe cases, the sense of suffocation is dreadful; the respiration is much more impeded, the cough more intense and protracted, the features more swollen and of a livid color; the eyes seem ready to start out of their sockets, the eye-lids much swollen, and their cheeks perhaps bathed in tears, till at last expectoration takes place, when the child will pant for breath, and be unable to return to play for a considerable time. The skin is above the natural temperature, particularly at night; complaint is made of headache; the appetite is bad, the bowels are more disordered, and flatulent distension aggravates the patient's suffering.

The straining which takes place during the paroxysm, is sometimes so severe as to produce involuntary discharges of fœces and urine. It is no uncommon thing for a small blood-vessel to give way in the coat that covers the eye, producing ecchymosis; sometimes, though rarely, a bleeding from the lungs, but very often a bleeding from the nose, which when it takes place in children of a full habit, is considered a useful occurrence.

In the worst forms of the disease, fever is certainly pre-

sent, and the breathing is always more or less impeded, which shows that some mischief is going on internally. Fits of temporary loss of breath are frequent, which are very often mistaken for convulsions, and by them children are sometimes suddenly cut off. Sometimes convulsions do occur and carry off the patient.

THE NATURE AND SEAT OF THIS DISEASE.

"The essence of hooping cough consists in irritation and inflammation of the mucus membranes of the body, but more particularly that of the air passages." The inflammation at the first is slightly sub-acute; and there is therefore no heat of the skin, no discernible disturbance of the pulse, no thirst; when the inflammation runs higher, then these constitutional symptoms make their appearance. It begins like catarrh, and at the first cannot be distinguished from it; the disease, when formed, comes in paroxysms. The paroxysm commences with a sense of coldness on the surface, making an irregular determination of blood upon the lungs. These organs become gorged, and the air is prevented from obtaining a free passage through the ramifications of the bronchi and air cells. Hence the difficulty of breathing, with tightness in the chest, and a sense of suffocation. The air passages become congested and inflamed; the larynx and parts in the neighborhood principally suffer, and the injection of the vessels being suddenly increased at every paroxysm, become swollen; the rima glottidis, or opening in the windpipe, is diminished, producing the hoop, and the appearances which seem to threaten suffocation.

TREATMENT.

As in its first appearance it cannot be distinguished from catarrh, let it be treated as it it were the same affection. If

the symptoms be very slight, give a gentle emetic; if threatening severity, let blood, give him an application of the bath and follow it with an emetic. If he shall not be relieved, and the symptoms become severe, repeat the same practice. If this kind of decisive treatment be performed as often as it shall be necessary, during the first stage, which is considered to continue three weeks, the case will presently assume a mild aspect, and the patient will be safe. It should be remembered, that his bowels should be kept gently free throughout the whole course of the disease. For this purpose, sometimes, a moderate dose of castor oil may suffice. And commonly the following preparation will be found particularly useful. Take bicarbonate of potas, one drachm, powdered ipecacuanha, fifteen grains, water, four ounces. Of this a teaspoonful may be given to a child two years old, every second hour, till it shall produce the necessary effect.

After the disease shall have assumed a mild and settled form, if by taking fresh cold, or from whatever other cause, the symptoms should again become severe, let him again be bled, bathed and vomited as before, with one variation only. In the commencement, the vomiting had better be produced by an appropriate dose of tartrate of antimony, in the later stages by a little ipecacuanha.

CHAPTER XII.

PNEUMONIA, OR INFLAMMATION OF THE LUNGS.

This disease has been denominated peripneumonia and pneumonitis; and when attended with a complication of inflammation of the pleura, it has been designated by the term pleura peripneumonia.

"Like all other acute diseases, pneumonia commences with shivering, followed by a hot stage, which is generally pretty violent, unless the inflammation be congestive, when coldness predominates. There is more or less difficulty of breathing, and the number of respirations considerably exceeds twenty in a minute; and twenty may be considered as the natural standard. The breathing in some cases is very laborious; but we must be very careful not to suffer ourselves to be led astray by the account which the patient may give respecting this point. Often, when the respiration is short and hurried, he will assure us that he does not feel the least impediment. Pain is not a well marked symptom in inflammation of the substance of the lungs; the patient complains rather of a tightness in the thorax; and when pain exists, it is in general dull instead of sharp. The cough is short and perpetual, and does not come on by fits; it is dry at the commencement, and continues to be very distressing and obstinate. The expectoration is scanty, viscid and discolored, from an admixture of blood; sometimes it is bright, like red currant jelly; but in general it is rusty looking, resembling brickdust intimately mixed with viscid mucus; it is very tenaceous, and adheres firmly to the sides of the ves-

sel into which the patient spits; the expectoration, though rarely, is sometimes fœtid. A gangrenous odor is perceived when the case terminates in gangrene.

In this disease the pulse is variable, and therefore to an inexperienced physician, an uncertain guide. The effect of depletion is different according to the condition of the patient. If his pulse be full because he is in a plethoric state, and congestion of the lungs have already occurred, well conducted blood-letting will diminish the frequency of the pulse and lessen the difficulty felt in respiration. If the pulse be small, tense and frequent, it will become fuller, stronger, less tense and frequent, after the depletion. The skin in some instances is hot and dry; and in others below the natural standard. The tongue soon becomes parched and dusk colored. A dry and glossy tongue always indicates danger, as does delirium also if it occur in the early stages.

In acute inflammation of the lungs, the part affected is red, and the parenchyma, or structure of the affected portion is more dense than natural, being overcharged with blood. In the second stage the structure becomes solidified, or in the language of Lænnec, it is hepatized.

TREATMENT.

In treating pneumonia, the lancet is to be used freely, and may be repeated and employed later in the disease than in bronchitis. If the pulse be compressible and not tense, the blood on the first bleeding should be permitted to flow till the pain abates, or till the vascular action is rendered moderate. The patient should then be carefully watched until the pain and difficulty of respiration begin to return, when, on careful examination the pulse will be found to be tense. Whenever this state of things occurs, the bleeding should be repeated, and the blood made to flow until the tension for the

time being, is corrected. After this state of things shall have been accomplished, the vapor bath should be used to the extent of perfect sweating, and the eighth part of a grain of tartarized antimony in an ounce of water, be repeated every second, hour till a return of the exacerbation; which sometimes occurs very soon after a proper application of the heated air. This circumstance would be considered by one not acquainted with the action and power of the remedy, as evidence of the impropriety of the treatment· On account of this fact, it has many times been condemned and laid aside as a dangerous remedy. The truth in the case is, that it is a very favorable symptom, and gives the most trustworthy proof, that the bleeding ought to be again immediately repeated, till the vascular action shall satisfactorily succumb. When the case shall have been conducted to this point, the exacerbations will recur at regular periods, twice in twenty-four hours, one from ten to twelve o'clock midday; another from ten to twelve at midnight; and at every recurrence, the patient should be bled till the tension of the pulse shall be corrected. In the mean time, a strict regard should be had to the state of the patient's skin; and whenever it is about to assume a permanently pallid hue, a large epispastic should be applied, and the blistering diligently continued, until the pain and all difficulty of respiration shall be entirely removed.

When the attending physician shall become familiar with the use of the bath, regarding the directions furnished on that subject, he will find that once every day, it may be employed with singular advantage, for the purpose of maintaining the vitality of the skin, and more effectually securing the intention for which the epispastic is applied. The number of bleedings, and the times of repetitions will be known by the returns of the paroxysms, and the tension of the pulse.

In a case of this sort, if the tension of the pulse be not completely subdued, it will change and assume the corded state. Any appearance like convalesence, with a pulse of that description, will be illusive, and a sub-acute irritation will follow. When such an occurrence befals a case, it is commonly said to be a relapse. The capillary vessels which had been in a state of congestion, though partially relieved by insufficient depletion, so soon as the arterial action gains a little strength by repletion, are again injected, as they were in the commencement of the attack, and sometimes even worse.

It is very desirable that this pathological fact should be particularly noticed, not only in respect to the safety of persons that may be subjected to the disease under consideration, but also that of all others who may become the subjects of inflammatory disease, of whatsoever particular description; since the same danger awaits them all. For many years we have had our attention turned to this subject, and have no recollection of an instance of chronic disease, either of the thoracic or abdominal viscera, in which the corded state of pulse was not one of its pathognomic symptoms. And we never could succeed in effecting satisfactory relief in such cases, without some depletive measure.

CHAPTER XIII.

PLEURISY.

Pleurisy is generally ushered in by a cold stage of greater or less severity. The patient complains of fixed pain in the side, over which he can place his finger, which he describes as a stitch, catching and interrupting his breathing every now and then, particularly when he fetches a deep breath. The pain is sometimes very acute and lancinating, as if stabbed with a sharp instrument. The breathing is difficult and anxious; short, but at the first not so heavy and oppressed as in inflammation of the lungs. There is also cough, which aggravates the pain very much; the expectoration is thin and watery, differing from that of pneumonia and bronchitis; the pulse is quick and tense, and the heat of the skin is more intense than in inflammation of the lungs. The skin is hotter over the chest, and particularly immediately over the seat of the pain; and external pressure made at that point, produces much inconvenience. The tongue, however much furred, soon becomes dry. The urine is scanty and high colored. And some patients affected with this disease become delirious.

There is a painful affection, often thought to be rheumatism of the muscles between the ribs, which is termed pleurodynia, and which is so much like pleurisy as to make it difficult to distinguish the one from the other, judging by external appearances. There is however a difference in the state of the pulse.

In pleurisy, in its commencement, the pulse is always tense. In the other affection, although the pain may be felt

intensely at every breath, still the pulse is readily compressed. The one is inflammatory, the other is neuralgic.

TREATMENT.

If the patient be of full habit, and accustomed to labor, let him be bled decisively, from one to two pounds. After one, two or three hours, apply the vapor bath intensely, so as to procure a free perspiration, with a flushing in the face, and a considerable throbbing of the temples. If the pain return, apply the bath a second time, to the same extent. Generally, by this treatment the pain will be removed; if not, let him be bled a second time. If the case shall have been neglected, and an inflammatory condition established, it may be necessary to apply ten or twelve leeches over the seat of the pain. Or four or six cups might answer as well. If the pain be not speedily corrected, it may be concluded that an irritation partaking more or less of a chronic form has occurred, and the case will require the use of blisters, digitalias, antimony, opium and calomel, to be employed according to the directions given in respect to those articles.

In a case of pleurodynia, commonly a decisive application of the vapor bath, followed by a dose of dover's powder, will mitigate the violence of the pain, and a repetition of the same treatment will often effect a cure. If, however, the pain continue obstinately to resist this treatment, a moderate blood-letting may be associated with a farther repetition of the bath, after which an epispatic eight by ten inches, will probably finish the cure. In either case, food must be very sparingly used, and the patient be kept quiet, and without exercise for several days. In many instances it is an excellent plan to keep the patient slightly under the influence of antimony; which will prevent him from feeling much inclination to eat, speak, or sit up.

CHAPTER XIV.

ROSEOLA—NETTLE RASH.

This disease is a febrile eruption, which is distinguished by circular elevations of the cuticle, of a red color, with a white spot in the centre, which are commonly called whelks. This is the most frequent appearance of the eruption. Sometimes the whelks are not red, but whiter than the surrounding skin. This eruption is often preceded by marks indicative of gastro-intestinal irritation and fever. In such instances, the patient is affected with restlessness, oppression, langour and loss of appetite, his tongue foul, with redness at its tip and around its edges. Sometimes the eruption is general, accompanied by great heat and itching of the skin, by which, however, the internal distress is relieved. In some instances the rash appears only when the patient is heated by exercise, or by wine, or when he is undressing himself; and it is often excited in a fresh part by friction or scratching. This disease is often produced by eating oysters a little stale, lobsters, crabs, shrimps, and the mutillus or sea muscle. In consequence of some peculiar idiosyncracy, some are similarly affected by eating mushrooms, honey, almonds, the kernels of stone fruits, strawberries, &c. In these instances the operation is almost instantaneous, and the symptoms very violent for several hours. When this affection occurs, it may continue for an indefinite length of time, and may be reproduced in particular constitutions, every time the stomach is disordered.

TREATMENT.

The patient should avoid all articles of diet which he knows from experience, can produce the disease. The stomach, &c. that is, the internal and the external surfaces, are the structures which are affected by the nettle rash.

Use the compound blue pill for the correction of the one, and the vapor bath for that of the other.

As in every other eruptive disease, if it be at all severe, it will involve the vascular structures, and be accompanied by more or less frequency of the pulse. If there should be present circumstances that may be thought indicative of too much fever to trust the case without decisive interference, by no means have recourse to the use of the lancet. We once visited a case of this sort, in which after an imprudent blood-letting, the disease had left the skin and determined its violence on the stomach and bowels, assuming the appearance of an incorrigible cholera morbus, which in a few hours terminated in death. Such a case of fever might often be subdued by a prudently administered dose of ipecacuanha; but depletion, even by an emetic, might be followed by troublesome introversion.

CHAPTER XV.

ERYSIPELAS, OR ST. ANTHONY'S FIRE.

Saint Anthony's fire is frequently preceded by a fever. A sore throat is commonly one of the premonitory symptoms. The patient feels ill; chilly, weak and languid; and often drowsy. At length his sensations are like ague, and his pulse very frequent, which may continue some hours before the eruption makes its appearance. It is not uncommon for it to be accompanied by a disturbance of the bowels, with nausea and vomiting; and sometimes by diarrhœa. Then some part of the face, most commonly one side of the nose, or one cheek, or the rim of one of the ears, begins to feel hot, stiff and tingling, which is soon of a deep continuous red color, and swelled and hard. The redness and swelling, with greater or less rapidity, continue to spread. The edges of the redness are a little raised above the level of the skin. Thus it progresses, and if not arrested, it spreads until the whole face or scalp, or both, are in a state of burning inflammation. The lips, swell, the cheeks are enlarged, the eyes closed by the thickening of the eye-lids, producing a degree of deformity, unequalled by any other disease but the small pox. It commonly begins on the face, and spreads backwards over the forehead to the hairy scalp; sometimes quite down to the neck and shoulders. Sometimes the inflamed surface is covered with small blisters. In many instances the inflammation is quite superficial, in others it dips through the skin, and affects the cellular tissue, under the

skin. When this occurs, it is followed by suppuration, and sometimes a sloughing of the part so affected.

TREATMENT.

In cases of erysipelas, as in every other disease, it is important that it should be met at the onset. So soon therefore, as there is cause to apprehend an attack, the patient should take a dose of ipecacuanha, especially if his stomach or bowels are not in good condition. Then let him be treated decisively with the vapor bath, regarding the same instructions which have heretofore been given for the treatment of other affections. In addition to the general treatment, let a shovel of hot coals be held to the inflamed part, so as to heat the surface intensely. And this local application of heat should be repeated, as often as the return of the burning peculiar to the disease, shall make it necessary. The patient need not fear the use of the burning coals. And as soon as he shall have proved how much relief and comfort are afforded by the treatment, he will call for its repetition.

If these two methods of applying heat should not be comfortably effectual, it may be coucluded that so much general inflammatory action exists in the case, as to require blood-letting; which being performed, repeat the bath and proceed on with the shovel of coals as above advised.

CHAPTER XVI.

SCARLET FEVER.

In eruptive fevers, as well as in other forms of fever, there are the two important distinctions. The one, congestive, the other inflammatory.

In the congestive form of this disease, the patient complains of a sense of heaviness or weight in the breast; and of a weakness so great, as to find it inconvenient to sit up. He feels more or less chilly. His face is pale, his features shrunk, his eyes hollow and dull; his surface cool, particularly, his extremities will be cool, whilst his body is hot; his breathing is performed with difficulty, his pulse in most instances is soft and weak, but sometimes cases occur, in which the pulse is strong; his tongue is small and covered with a whitish deposit of lymph. There is universal prostration, with headache or a complaint of weight on the top of the head, and a difficulty in swallowing. On examining the throat the parts appear somewhat swollen and of a dark color, and if there should be ulceration, the sores will be ash colored and look indolent. Sometimes a case of simply inflammatory scarlet fever will unexpectedly take on all these appearances, upon a sudden disappearance of the rash; and again the signs of congestion have all disappeared upon the reproduction of the red appearance of the skin.

It is the congestive form of scarlet fever which is most usually attended by convulsions. And in the worst cases of it, there appears to be no redness of the skin. The disease commences in such cases, with vomiting and purging, which continue in defiance of every effort to arrest them. Instead

of being red, the skin presents a livid, death-like appearance; becomes cold; the features shrink and the patient dies in ten or twenty-four hours, in a state of restless delirium. Sometimes symptoms like croup take place, which is generally a precursor of death. This disease seldom occurs in a purely congestive form. It commonly exhibits a combination of inflammatory, with the congestive symptoms.

The inflammatory form of scarlet fever commences with a chill, or sometimes with only a slight chilliness, which, as in other fevers, is followed by more or less heat, want of appetite, thirst, inability to sleep, headache, some degree of sickness at the stomach, and a sense of weight in that region; the tongue at first slightly loaded, red, with raised papillæ; or much loaded with a yellow fur, red at the tip and round the edges, but sooner or later, it takes on an uniform shining red color. It sometimes is fitly compared to a piece of raw beef; if the case be protracted and typhoid, it then becomes dry, brown and cracked. Soreness of the throat is often the first symptom. On inspection the tonsils and palate are either much swollen or inflamed, or of a dusky hue, and in bad cases, are ulcerated. Sometimes, in consequence of subacute inflammation in the larynx or bronchial tubes, the case will be attended by difficulty of breathing, cough and hoarseness. Sometimes these appearances exist from two to five or six days, before the redness peculiar to the disease, makes its appearance. In some of the milder instances, the eruption is the first symptom. In general, it makes its appearance on the fourth or fifth day; when it will be seen on the face and neck, after which, in the course of twenty-four hours, it becomes generally diffused. This partial description is sufficient for our purpose.

TREATMENT.

In this form of fever it is highly important, that suitable

measures be taken without delay. If possible, it ought to be treated in anticipation. With the discretions given in respect of the use of the vapor bath, it can never do serious injury. So soon, therefore, as the disease is thought to have taken hold—we mean in the time of the predisposition, and on the first complaint of the patient—treat him with a decisive bath. This will disclose the true state of the system. If the case be inflammatory, the ordinary symptoms of inflammatory diathesis will be evinced. These will be corrected by an appropriate blood-letting, and the case will prove itself to be mild and manageable. In scarlet fever not only the throat, but the whole extent of the mucous surfaces is in an irritable state and is readily irritated by the use of any drastic or harsh remedy. It is therefore a great advantage, that a proper management of the external surface will render it unnecessary to irritate the internal, that is the mucous surface, by ordinary medication. If, however, the agency of the bath be followed by too much vascular action, there need be no hesitation as to the propriety of using the lancet. We feel very confident, that the number of unmanageable cases will be greatly lessened, by the practice here recommended.

If an artificial evacuation of the bowels shall be deemed necessary, an aperient of the mildest kind is to be preferred; such as elder blossom tea, sweetened with manna; or a portion of sweet oil, to which, if found necessary, a tea spoonful of fresh castor oil may be added.

In any case, howsoever it may have been treated, if the eruption take on a livid hue at any stage of the fever, let the bath be repeated, and when retired, let pains be taken to keep up the excitement of the external capillaries, by using large cloths wrung out of hot water, to be laid over the entire trunk of the body, and jugs or bottles filled with hot water may be kept continually at the patient's feet; remembering, that this kind of management, when required, must be con-

tinuous, till the necessary correction of the skin shall have been secured.

The best wash for the throat, is pure warm water. When it shall have been ascertained, however, that ulcers have been formed, a solution of the nitrate of silver,* may be tenderly applied, twice in twenty-four hours, and continued, till the sores shall present a healthy appearance. Afterwards continue the warm water without addition. If the skin be kept in proper condition, the patient may safely be indulged in a moderate use of cold water, and if convenient, ice may be added. His diet should be exceedingly light, and small in quantity.

During the time of convalescence, he should carefully avoid exposure to cold or wet weather. After an eruptive fever, the capillaries are feeble in their vascular action and in their functions. Exposure, therefore, readily affects them injuriously, and all the mischiefs commonly ascribed to taking cold, may be readily induced.

* Ten grains of the nitrate of silver to an ounce of pure water.

CHAPTER XVII.

MEASLES.

This disease is a fever with an eruption. Like other forms of febrile affections, it appears in two varieties; the congestive and the inflammatory.

In the first, the vascular action of the system would appear to be inconsiderable and the eruption quite trivial. The pulse appears to be feeble; but the debility is indirect and the system oppressed. In most instances of this sort, the pulse is frequent, the eruption slow in making its appearance, and when it begins to manifest itself, the redness and heat which are very conspicuous in the inflammatory variety of the affection, are scarcely and sometimes not at all discernible. The functions of the brain become disturbed, the respiration oppressed; the leading features of congestion are soon exhibited, and if suitable measures be not timely taken, patients so affected will generally be lost.

The inflammatory variety, is the one we most commonly meet with. It commences with the usual eruptive fever, marked in its onset by chilliness, depression and debility. The fever is accompanied by a dry cough with hoarseness; frequent fits of sneezing, with every appearance of nasal catarrh. He complains of giddiness and pain in his forehead, and often also in his back; the pulse in some cases is small, tense and frequent; in others full, tense and frequent; and often, it is irregular and oppressed; the bowels generally are constipated and the evacuations offensive. In the course of

the second, third or fourth day, the symptoms become more aggravated; light offends the eyes, which are red, watery and inflamed; the difficulty of breathing is much increased; there is a tightness felt across the chest and a painful weight at the prœcordia. The eruption makes its appearance, first on the face and neck; in twenty-four hours, it shows itself on the breast, and afterwards gradually extends over the whole body; it consists of small red pimples, a little raised above the level of the skin, resembling fleabites; these extend, forming little patches which take on shapes slightly imitating the figure of new moons, of the fourth or fifth day after the change.

As the eruption is about to make its first appearance, the patient in some cases is seized with violent sickness and vomiting; sometimes with convulsions; all of which abate if the eruption comes out freely.

TREATMENT.

The congestive form of fever which sometimes occurs in the commencement of an attack of measles, ought almost invariably to be met by letting blood freely from the arm. After the bleeding, the bath may be used decisively. By this treatment, the system will commonly be adjusted; and the case will progress as in an instance of the ordinary and mild inflammatory distinction. But in this, as in every other congestive fever, it is important to begin early; permitting no time to elapse after the appearances indicative of congestion, begin to occur.

There may be instances of intermediate description, which claim our attention in this place. These are ill longer than usual, generally five or six days before any eruption appears, having the usual symptoms which attend catarrh; great debility and drowsiness; frequent vomiting and discharges from

the bowels, which are sometimes bloody; pulse frequent, tongue white, the skin rather cool. And when the rash appears, it is less distinct, less elevated, and of a darker color. After it retires, the patient is more or less distressed with cough, difficulty of breathing, diarrhœa and retching to vomit, and if not corrected, soon assumes all the appearances of a typhus fever. In a case like this, we would first employ the bath, which will at once produce a favorable effect. If symptoms indicative of too great vascular action should follow, a blood-letting will immediately subdue it, and a repetition or two of the bath, will remove all the alarming symptoms. In the slighter forms of this disease, as in scarlet fever, very little medication is necessary. Confinement to one room, gentle laxative medicines and a low diet, will generally answer every useful purpose. In the commencement, even in the simply inflammatory form of measles, it is proper and necessary to let blood, if the eruptive fever rise too high. And when the branny scales begin to form on the surface, it is often greatly beneficial to repeat the depletion. About at this stage of the disease, the lungs or bowels may be threatened with danger. In any such instance, the bath may be used with great benefit. Let the bathing be decisive. As a suitable aperient, we would recommend the milk of sulphur, of which a teaspoonful may be given and repeated, as there may be occasion. It may be given in a little molasses; or if it be preferred, in a little new milk. The use of the sulphur will keep the bowels in good condition, and give greater security for a healthy convalescence.

In any protracted case, the circumstances and appearances which occur in other forms of fever, may be looked for in like manner in measles; and require the same kind of treatment, not regarding the fact, that the disease in the first instance, was called measles. One peculiarity which is common to this and all the eruptive fevers, may be noticed. The

eruption in the degree of its extent and severity, leaves the capillary vessels of the surface in an enfeebled condition, making it necessary to guard the skin more carefully, and for a longer period, than is required in other instances of fever. The common opinion that measles can fall upon the lungs or bowels, is altogether erroneous. The truth of the case is, that the disabled state of the skin, makes it more liable to be affected by cold or wet weather; and when the lungs or bowels become diseased after an eruptive fever, the affection is consecutive on the debility induced by the fever, and is not produced by the falling inwards of the imaginary peccant matter thought to be contained in the eruption.

If this plan of treatment, which we have adopted and found successful in every instance, should become general, many useful lives will be preserved by it. There are so many who fancy themselves good judges in all cases of measles, whose leading opinions are very erroneous, but who, nevertheless, have sufficient influence to be trusted, that sooner or later, hundreds and thousands, are induced to take their prescriptions and postpone their applications to men of real pretensions, till irretrievable mischief is done. Many cases of consumption have been the consequences in instances of adult patients. Tabes messenterica has often been set up in cases of children.

CHAPTER XVIII.

SMALL POX.

We have introduced small pox, that we might have occasion to call attention to the important fact, that the eruptive fever which ushers in this loathsome and destructive disease, is subject to all the various and perplexing distinctions, which are observed to take place in scarlet fever and measles, and may be met with the same kind of treatment. If it be inflammatory, blood-letting is indispensable. We have let blood four times, abstracting one pound at each time, in the course of the day preceding the eruption. But for this, the case would have been congestive. Let the rules for blood-letting be regarded, and repeat according to the exigencies of the case; and if there be occasion, secure reaction, by the aid of the bath. This may be done without fear. If in consequence of existing debility, the eruptive fever be imperfectly exhibited, pursue the same course. By the agency of heat, externally applied, the true condition of the case will be developed. If the debility be indirect there is corresponding danger of congestion, and the bathing must be followed by blood-letting, to be repeated or not, as the case shall require. If in view of the previous health of the patient, and of other circumstances which may be taken into the account, the condition of the patient shall be found to be, that of direct debility; the bath should be used and its effect sustained by a free use of an infusion of Virginia snake-root tea; and this practice should be repeated, until the eruption shall be perfect. As in the other eruptive fevers, much medication is injurious, so also in

small pox. And as in the convalescence of measles, scarlet fever, &c., much care is necessary to avoid being chilled, so also and more particularly in the case now under consideration. There need be no hesitation in respect of using the bath. It is safe in the beginning; it corrects a premature recession or sinking of the pock; and it corrects a tendency of the circulation to turn upon the lungs or bowels at the termination of the disease.

In a case of small pox, if it be very severe, mischief can be done by the severity of the first exacerbation, in two ways.

In an instance of fatal scarlet fever, on an examination after death, the meninges of the brain are commonly found to be in the condition of incorrigible congestion, the effect of the first day's fever. A similar mischief can be done in a case of small pox. The decrepitude of the brain when induced, will so much enfeeble the system, that the skin will be disabled and the injury done to it by the eruption, leaves it in a condition readily subject to gangrene. And in fatal cases of the disease when confluent, the skin dies before any other part of the body. A timely blood-letting will prevent both these mischiefs.

We deem it unnecessary to add further remarks, as vaccination, employed as it ought to be in every family, will either prevent or greatly mitigate the dangers attendant on this formidable pestilence.

CHAPTER XIX.

MUMPS.

An inflammation of the parotid glands, which are situated below the angle of the lower jaw, near the ear, is called mumps. It seems to be contagious, as it occurs but once in the course of life. It is sometimes painful, but almost never dangerous. It sometimes appears to fall upon the testicle in the male and upon the breast of the female.

If there should be much pain, it would be beneficial to let blood, apply the bath, and administer a gentle aperient. Also a shovel filled with red hot coals may be held near the painful tumor, whilst an application of camphor and oil may be made to the part affected, rubbing it in gently with the hand. The same kind of treatment will be proper in respect of the testicle or breast, in those cases which may require that sort of treatment. The hot coals applied in the same manner, will relieve sore throat or other local affections, whether boils, sprains, bruises, inflamed cuts or sores, and carbuncles, &c. To be beneficial, however, the coals must be held near enough to produce intense heat and redness of the skin.

A case of mumps might occur in which the fever would be sufficiently intense to require attention. In an instance of that sort the patient should be bled and then treated with the bath.

CHAPTER XX.

GASTRITIS, OR INFLAMMATION OF THE STOMACH.

Inflammation of the stomach is known by a burning pain in that organ, which is increased by pressure; a constant desire for cold drinks, which are vomited almost as soon as swallowed; sickness at the stomach and a desire to throw up are incessant; the surface over the epigastric region is commonly very hot, whilst at the same time, the extremities are cold or nearly so. There is in some instances, a sore throat, with appearances of inflammation on the fauces. Hiccup is one of the most troublesome symptoms. The tongue, though not always, is commonly red at the tip and round the edges, and is covered with a filthy coat in the middle and towards the root. In some cases of long standing, it is red, glazed and smooth. This last appearance, however, is more frequently a symptom of inflammation of the lower intestines than of the stomach. Breathing is anxious and quick; the pulse small and tense, often fitly compared to a tightly drawn cambric thread. Great restlessness with rapidly increasing prostration of strength. The patient complains heavily. Towards a fatal termination, his features shrink and he lies on his back. The bowels are commonly in a state of constipation. At the first he vomits what he drinks and little else, except occasionally, some bilious matter. Generally the vomiting prevails through the whole course of the complaint, till the black vomit closes the scene

TREATMENT.

Let blood till the tension of the artery retires. The quantity of blood which is necessary, can be known only by the effect of the depletion on the pulse. After a decisive blood-letting, apply the bath. In this case, it should be very hot. After the bath make hot applications directly over the seat of the distress. So soon as the tension of the pulse and the distress of the stomach recur, repeat the bleeding and the bath, as before. Then apply a large epispastic over the abdomen, ten inches by twelve, or even larger if the case be severe. Again a third or fourth time, repeat the bleeding and the bath, if the state of things requires it. Decision is necessary. The disease is a very dangerous one, and requires a treatment corresponding to its severity.

After the violence of the disease shall have been overcome, care is necessary in respect to diet, exercise and exposure. A light diet, passive exercise only, and that in moderation, avoiding exposure to cold or wet weather, are the points to be regarded during the convalescence.

The patient should drink cold water, in which should be dissolved a little gum arabic; or it may be made mucillaginous by steeping it in a handful of the pith of sassafras wood. If it be convenient, the water may be made cold by adding ice. The quantity taken at a time should be small, but may be frequently repeated.

CHAPTER XXI.

ENTERITIS AND PERITONITIS. INFLAMMATION OF THE MUCOUS MEMBRANE OF THE BOWELS.

Inflammation of the mucous membrane of the bowels, generally comes on insidiously. It begins with symptoms of fever, or it may seem to be, as if a symptom of subsequent occurrence, discovering itself, after fever shall appear to have been established. Pain is often slightly felt, in comparison with that, which generally attends peritonitis. If the pain be considerable about the navel, it indicates that the inflammation is seated in the small intestines. Cold drinks aggravate the distress, as does any article of diet, except rice water, chicken water or some such very light fluid material. The pulse varies at different times in the day. It is commonly frequent but not so tense as in peritonitis. The skin is hot and dry through the day and night, till towards morning, when it becomes moist, and then the patient enjoys comfortable sleep. The tongue presents various appearances in different patients. In general, it is red at the tip and round its edges; but sometimes it will be clean, at others foul, and both without redness. Sometimes it is entirely red, sometimes raw and smooth. This last, reports great irritation. If the upper parts of the intestines be affected, there will be nauseau and an inclination to vomit. If the lower parts are affected, there will be more or less diarrhœa and considerable discharges of flatus. A twisting pain coming on and retiring at intervals, of an hour or half hour, or less, is an indication of distress in the colon, and is followed by an irresistible desire to go to stool. If the rectum or lower

end of the intestine be affected, the patient has almost a continual desire for the close stool, and passes nothing but bloody mucus or some small lumps accompanied with much flatus. It must be remarked here, that the discharges above described, are always present when we denominate the disease diarrhœa or dysentery; but the inflammation of the mucous membrane may exist, and these two symptoms not be manifest.

TREATMENT.

If the symptoms be severe, a decisive blood-letting will be necessary; then apply the bath. The blood-letting should be extended until the tension of the pulse be made to yield. If the case be mild, a decisive bathing may be sufficient without loss of blood. After the bleeding and bathing, make warm applications to the abdomen—a large flannel cloth wrung out of hot water, and renewed every half hour. If the pain or vomiting, &c. return, repeat the bathing, and if the case be violent, the bath may be preceded by a second bleeding.

After having removed the violent symptoms, the bowels may be opened by the use of some one of the most gentle apperients. Sometimes tympanitic appearances occur. In such instances an injection of thin gruel, adding a teaspoonfull of spirit of turpentine, may be administered and repeated if necessary. When the desired evacuations shall have been secured, the patient may be comforted with a dose of dovers powder, from five to ten grains, which may be repeated, if the case require it. The convalesence may be guarded as if it had been a case of fever.

Peritonitis is inflammation of the intestines, differing from the foregoing only in that the external coat and the lining of the abdominal cavity are involved. This coat is called the peritoneum, and is more sensitive than the mucous lining of

the intestines. Peritoneal inflammation is attended therefore with more pain, and the vascular action is more violent, requiring more decisive blood-letting. In other respects the treatment will not materially differ in the two distinctions of the disease.

When these symptoms occur in any case of fever, they should be met in a similar manner, modifying the practice according to the existing circumstances and strength of the patient.

Without the aid of this important agent, it will often happen, that the extent of blood-letting which may be necessary for the safety of the patient, cannot be safely carried out. The recovery therefore will be slow and imperfect; and there will follow, weakness of the stomach, of course imperfect digestion, constipation, colic, and not unfrequently all the train of evils which are ascribed to dyspepsia. But the efficacy of the bath in maintaining the vitality of the superficial capillaries is such, that when known and understood, any ordinary apprehension of a failure in the system to react after the necessary depletion, will be removed, and the attending physician will use his lancet with becoming decision.

If the case in the course of treatment, shall have required much blood-letting, it will commonly be prudent to guard the convalescence with a large epispatic, to be laid over the abdomen.

CHAPTER XXII.

DIARRHŒA.

Too frequent liquid stools, report a condition of the intestines which is called diarrhœa. The evacuations in such a case, are almost always offensive, light colored, watery or slimy, often containing some fœces. It is sometimes accompanied with thirst and griping pains in the belly, which seem to be relieved for a short time after every evacuation. It soon produces great prostration of strength. Some times it commences with fever, which is apt to be relieved by the evacuation itself, without medicine. It may be produced by excess in eating, or by eating unwholesome articles of food. It may depend on an irritated state of the liver, or an irritation or inflammaticn of a part or the whole of the mucous membrane, &c. &c. It may be a mere introversion of the circulation, the effect of cold.

TREATMENT.

If attended with much pain and a tense pulse, he should be first bled and then bathed. If there be little or no pain, and the pulse be feeble or frequent, let the bath be first used then give ten or fifteen grains of dovers powder. If indigestible food be the known cause, a moderate dose of castor oil with ten, fifteen, or twenty drops of laudanum, or a gentle dose of epsom salts, followed by a similar portion of laudanum. If there be sick stomach, or if the stools be bilious, accompanied with pain and straining when on the close stool,

give first, after the bath, a dose of calomel and opium; say calomel three, four, or five grains, with one grain of opium, which may be repeated once or twice in twenty-four hours. If the disease continue, repeat the bath twice, in the course of the day and night; examine the discharges, and if fragments of lumpy fœces be found mingled with the evacuations, the oil or epsom salts may be repeated, once or oftener as there may be occasion.

If the disease should still recur after being apparently corrected, use one of the minimæ pills, three or four times a day, and repeat the bath as there may be occasion.

Diarrhœa is often permitted to run, till it becomes habitual, and when it shall have been of very long standing, it is always more or less difficult of cure; especially if the patient shall have been long accustomed to the use of tobacco, or have been subject to any kind of intemperance in eating or drinking, &c.

Such cases would be comforted by the treatment above recommended. But a large majority of them will require much skill and patient attention. In many instances, large blisters made continuous, and associated with severe and extensive friction daily repeated, will be found necessary, together with the best known agents for recovering the tone of the bowels.

Great caution in respect to diet, and a patient continuance in the use of suitable articles, to the exclusion of all others, will commonly be necessary to prevent a relapse.

CHAPTER XIII.

DYSENTERY.

There are two varieties of dysentery, acute and chronic. Acute dysentery begins like a common diarrhœa, with looseness and pain of the bowels; the calls to stool are frequent and the patient cannot help straining; the discharges are sometimes large and fluid, having the common odor; at other times they are scanty, often accompanied with lumpy matter, very slimy, streaked with blood, and very offensive.

The patient feels more or less relief by the stool, but in a very short time the same pain and desire for the close stool returns, and there will be many repetitions of the same kind, in the course of twenty-four hours. For the first day or two, there is not much heat of skin, nor disturbance of the pulse; the tongue is covered with fur, with redness at the tip; there is great thirst; commonly no appetite; considerable debility, with low spirits. After two or three days, a pain and soreness is felt in the lower part of the abdomen, and reaching from one hip to the other, which is greatly increased on pressure. If the patient were robust, the whole skin will now become hot; if feeble or delicate, the abdomen only will feel burning to the hand, and the rest of the body cool; in very dangerous cases, the extremities may be death-like cold, and the patient complain of being chilly. The stools become more frequent and scanty, being altogether mucus, or mucus mixed with blood,

or what is worse, they may still be fluid, and of a dark brown color, with portions of slime afloat in it; or they may be like dirty water, stained with blood, floating a few little lumps. After this, the stools soon become very offensive; something like cramp is felt in the thighs and legs, which being relieved by each evacuation, the patient dislikes to leave the close stool and lie down on the bed. His urine seems deficient, accompanied with pain, his thirst is great, and his tongue dry and glazed.

The chronic dysentery presents appearances so similar to Diarrhœa, that it might be mistaken for it, but for the following symptoms; which are, severe fits of griping about the navel, like colic, speedily followed with irresistible desire to go to stool, the discharges will be a dirty, brown, feculent matter, or it may be greenish, or yellowish, or it may look like yeast, or thin gruel, or rice water; commonly, however, accompanied with much wind. If not timely relieved, it progresses like a fatal diarrhœa.

TREATMENT.

Proceed as if it were diarrhœa. Apply the vapor bath. If it do not remove the pain, and especially if the pulse be tense, let him be bled. After the bath, whether the bleeding be necessary or not, administer a spoonful of castor oil with fifteen or twenty drops of laudanum; or if the oil cannot be taken, give two or three teaspoonsful of epsom salts dissolved in water, with the same quantity of laudanum; or two or three grains of calomel, with a fourth of a grain of opium. Some one of these doses may be repeated every third or fourth hour, until a discharge of fœces is procured. In the mean time the patient may be comforted by large injections of milk and water, frequently repeated. If he be not satisfac-

torily relieved by one course of this sort, repeat the vapor bath, and proceed a second time as before. If there should be occasion for a third repetition of a similar course of treatment, it would be well to apply a large blister over the abdomen, which, when drawn, may be dressed in the usual manner. The same plan of treatment will be proper in managing a case of chronic dysentery.

The diet in both cases must be light, such as thin chicken soup, rice water, boiled milk, or boiled milk a little thickened with flour or rice, gradually making the diet somewhat more nourishing, as the patient gains strength, &c.

We will conclude our remarks on dysentery by stating, that we have used our vapor bath in this painful affection in all its stages, and in every instance with the most satisfactory effect. In a case that had become chronic, and of five or six weeks standing, the patient was cured by one application, followed by an appropriate course of diet. The treatment was extended to a greater than usual length of time. The young man sickened under the agency of the bath, and vomited as effectually as he would have done, in consequence of a moderate dose of ipecacuanha. The sickness was similar to that which follows a decisive blood-letting.

CHAPTER XXIV.

CHOLERA MORBUS.

This disease generally commences with nausea and griping, which come on suddenly, and soon terminate in vomiting and purging. In very severe cases, the body, and particularly the extremities, soon become cold; the breathing is oppressive and hurried; the features shrink; the eyes become hollow; the countenance anxious; the pulse small, contracted, and soon so weak as scarcely to be felt at the wrist; thirst excessive; the patient calling for cold water, which so soon as swallowed is rejected; he complains of cramp in the legs, and sometimes in the arms; in some instances, spasmodic contractions take place in the muscles of the abdomen; the discharges from the bowels are watery, with an offensive odor; sometimes they appear like water in which meat had been soaked; and in some instances, bilious matter is discharged upwards and downwards at the commencement, which changes and becomes watery.

This alarming complaint may be produced by cold feet; by suppressed perspiration from sudden exposure to cold; by taking too freely of cold drinks when much heated by exercise; by eating unwholesome vegetables, fruits, &c.

TREATMENT.

When there is good reason to suspect that some acrid matter in the stomach, whether vitiated bile or indigestible food is the cause, let the patient drink a tumbler of

warm water, having a teaspoonfull of ground mustard seed stirred up in it, repeating the same, if necessary, until the stomach is relieved.

In the mean time, let the vapor bath be applied and continued until free perspiration shall have been established. Afterwards, give a quarter of a grain of opium, with one or two grains of calomel every half hour, or every hour until the patient shall be relieved. Any inconvenience which may be felt after an attack of this sort, may be met and treated according to circumstances.

When the Asiatic cholera visited Baltimore in 1832, we attended many cases, and our plan of treatment was successful. The mortality in our families did not exceed five per cent. But those persons who were guided by our advice, regarded our admonition to report themselves, so soon as there was any occasion to apprehend an attack of the disease.

When diarrhœa was the first symptom, we commonly succeeded in suspending, if not in removing it, by the use of the following preparation: Take opium, one grain and a half; gum arabic, forty grains; prepared chalk, forty grains; loaf sugar two drams; oil of cloves, two drops; grind the opium with the gum arabic first, then unite the other articles and grind them all well together, adding two drams of tincture of kino and two ounces of water. Of this preparation we gave a teaspoonful every fifteen or twenty minutes, till the bowels were quieted. In the mean time, we used heat and friction externally—let blood when necessary, and in other respects treated it as if it had been cholera morbus or bilious fever, as the subsequent symptoms and circumstances indicated.

Excepting the peculiar kind of diarrhœa which attended the disease, we considered the cases of collapse, to be nearly assimilated to what we had been accustomed to denominate malignant intermittent fever.

CHAPTER XXV.

COLIC.

This disease may be produced by indigestible food, costiveness and by a diseased condition of the function of the liver.

It may be known by griping pains and flatulent distension of the bowels, which is accompanied by a sense of twitching in the region of the navel; sometimes the muscles of the abdomen appear to be drawn inward. Sometimes, but not often, there is some degree of nausea and vomiting. Wind is sometimes heard rumbling backwards and forwards in the bowels; the pain comes on in paroxysms, and while it is on, the patient is relieved by pressure, which does not happen when the case is inflammatory. Although the abdomen is hard and distended with wind, in a case of true colic, the pulse will remain tranquil, in consequence of the absence of fever; and when the pain is off, the countenance resumes its natural expression; whereas, in an inflammation of the bowels, the patient inevitably looks sad, his pulse will be tense, and there will be a concomitant fever.

TREATMENT.

Administer as soon as practicable a free injection of red pepper tea, with the addition of an ounce or two of glaubers' salts; or thin gruel with a teaspoonful or two of table salt and an ounce or two of epsom salts, which may be repeated until the bowels are evacuated. In the mean time, and with-

out waiting for the effect of the injection, apply the vapor bath decisively. If the case be simple colic, so soon as his bowels shall have been evacuated, he will be relieved. If there shall have been any misapprehension respecting the case, and it shall be inflammatory, the pains will return with some signs of fever. In such an event, let him be decisively bled, and the bath be repeated. The subsequent treatment should be according to the instructions given in a case of enteritis.

There is a very painful affection, which is commonly called colic, the seat of which is the stomach, and which is the effect of indigestion. The debility of that organ, which is the proximate cause of the complaint, is very often the consequence of bilious fever, particularly if the patient shall have gone through the course of the fever, not having had the necessary amount of depletion. Under such circumstances, the convalesence is imperfect; a subacutely inflammatory condition of the stomach remains. The function of digestion is impaired, and almost any kind of diet becomes acid. The whole mass of solid and fluid material constituting a meal, becomes greatly offensive to the nerves of the stomach, producing pain till discharged by vomiting, or till it passes off by the action of the bowels. Supercarbonate of soda, in doses of thirty grains, may be taken in a gill or two of sweetened hot water, and repeated every fifteen minutes, till it produces vomiting. In the meantime use the bath. After the fit of colic shall pass off, the patient would be profited by the use of the minimæ pills, frequently repeating them, one for a dose, to be taken at bed-time.

CHAPTER XXVI.

DYSPEPSIA.

This disease may be the consequence of indolence, intense study, grief, anxiety of mind, diarrhœa, abuse of alcoholic drinks, excessive use of strong tea, coffee, &c. chewing or smoking tobacco, and in delicate persons insufficient clothing, or a residence in the basement story of a house or other damp situation, &c. &c.

The symptoms of this disease are, impaired appetite, sometimes a loathing of food; in some, an excess of appetite; in others, the appetite is morbid or perverted. The patient feels an uneasiness at the pit of the stomach, most frequently after eating. Sometimes the sensation is, that of gnawing; at others, that of sinking or emptiness, or of fullness or weight. Some, after the food is partially digested, throw it up; some feel a cramp; some are distressed with belchings; others cast off the food by mouthfuls, being continued for an hour or two after eating; others are worried with a hiccough. In others we find flatulence, heart-burn, eructations of acrid or bitter fluids. Sometimes the fluid is thin, slimy, and insipid, which is commonly called water-brash.

TREATMENT.

In order to effect a cure of this disease, much depends on diet, and it requires not little fortitude to adhere to a proper course, a sufficient length of time. Dyspeptic patients are generally more or less feeble and are said to be in delicate

health. The natural secretions of the stomach are deficient in quantity and in their digestive qualities. The diet therefore should not be fluid in quality, nor large in quantity. We have known the best effects from a persevering adherence to the use of the best water cracker, with mutton chop, without the addition of any beverage for the space of six or twelve months. The medical treatment which should be associated with this kind of diet, may be confined to the occasional use of the anodyne alterative pill, the form of which will be found in the appendix. The delicacy of the patient's health will require a strict attention to his clothing, which must be made to change with the various changes of the weather.

Every morning, before dressing himself and every night before retiring to bed, as also after every instance of exposure to cold or inclement weather, so as to have been chilled, he should expose his naked skin to the agency of a brisk fire, taking his seat at such a distance as shall cause him to feel the heat act pungently. Then using more or less friction, with a brush or coarse towel, and turning from side to side as he will be compelled to do to endure the proper degree of pungency, he will set up, and at length establish a healthy excitement of the capillary vessels of the surface.

By this method carefully and perseveringly continued, the patient will acquire a proper acquaintance with his own condition from time to time, and will learn how to correct the ill effects produced by vicissitudes of the weather. If, notwithstanding this kind of management, he shall at any time take cold, let the vapor bath be applied, and it might not be amiss to make frequent use of this remedy. Let it be remembered, that if the known cause, whatever it be, if an improper diet, or excess in eating, &c., if the use of alcoholic drinks, if smoking or chewing tobacco, &c. be continued, no remedy will be sufficient to effect a cure.

CHAPTER XXVII.

JAUNDICE.

This disease may be consequent on an inflammatory condition of the liver. Sometimes it occurs suddenly, when it is preceded by langour, some degree of restlessness, failure of appetite, flatulent enlargement of the abdomen, possibly nausea, vomiting, and a dull pain or sense of weight in the region of the liver; the tongue is generally furred and yellow; the urine scenty, usually of a deep yellow; sometimes tinged with green; and sometimes thick, like the grounds of porter; the bowels indolent; the evacuations, whitish or the color of ashes. The color of the skin varies from that of a pale lemon to almost black. The change in the color of the skin is preceded by some tingling or itching of the whole body. The white of the eyes partake of the color of the skin, and often the patient is led to imagine, that he perceives a tinge of yellow or green, upon every white cloth subjected to his inspection.

TREATMENT.

Apply the vapor bath, and give him a dose consisting of five grains of calomel and five grains of ipecac., repeating the ipecac. only every half hour until he vomits. Afterwards, use the compound blue pill, repeating one for every third hour daily, often enough to keep the bowels gently free. In the meantime, repeat the vapor bath every night, or every second night, until the patient is relieved.

CHAPTER XXVIII.

HEAD-ACHE.

Common head-ache, is less frequently the effect of disease in the head, than a morbid condition of the stomach and bowels. In persons of a nervous temperament, it may be produced by exposure to cold; and sometimes it follows excessive depletion; upon persons of this description long fasting has the same tendency; in persons of plethoric habit, too great fullness of blood, with or without too much exercise, can produce head-ache.

When pains in the head are preceded by chilly sensations, and attended by giddiness and drowsiness, and especially if produced by very slight exertion; or if set up by entering a heated apartment, or by taking a moderate stimulant, ought never to be permitted to exist long without medical aid.

TREATMENT.

A slight nervous head-ache is often relieved by bathing the feet in very hot water, or toasting them naked, severely, at the fire, and drinking a cup of hot tea.

A sympathetic head-ache, such as depends on the condition of the stomach and bowels, is as certainly relieved by a gentle emetic, followed by a suitable apperient for the bowels.

When it has been produced by exposure to cold, bathing the feet in hot water, &c. and holding a shovel of burning

coals, so as to act intensely upon the head and face will commonly afford relief. If these measures should fail, however, apply the vapor bath; if all fail, it may safely be concluded that blood-letting is necessary.

The last description of head-ache, defined as above, always implies a tendency to fever, and should be treated by blood-letting, and the application of the vapor bath; both of which may be repeated, once or oftener, until the patient is relieved; commonly, however, in a case of this sort, a cathartic, and possibly a repetition of it may be necessary.

Thus far, we have had in view such cases of head-ache as occur incidentally, and pass away in due time, without any serious consequences. All such cases must be considered as materially different from the kind of pain in the head, which ushers in and accompanies cases of fever. Very often the amount of danger which is to be apprehended in the commencement of an autumnal attack of idiopathic fever, may be estimated by the degree of head-ache which attends it. In such a case no temporising is admissible. If the pain be very severe, and the pulse be tense, the life of the patient may depend on a speedy and decisive blood-letting; and if it should not be relieved by one bleeding, it may be necessary to repeat the operation once or oftener.

If the first exacerbation of a bilious fever in autumn, or of a pleurisy, or other inflammatory disease in winter or spring, or summer, should be permitted to wear itself down, without depletion, and a settled pain in the head be the consequence, not only a single blood-letting may be necessary, but frequent repetitions of the same, cupping, leeching and blisters might be necessary to save the life of the patient.

CHAPTER XXIX.

PILES, OR HŒMORRHOIDS.

Persons who are affiicted with piles, suffer only occasionally; when they are commonly said to have an attack of piles. A sense of heat and fullness is felt in the rectum, attended sometimes with a stinging pain, which is increased when at stool. The straining which it produces, is often attended by a considerable discharge of blood; and the sensations felt, are very much like those that attend a case of dysentery. Persons in this condition are often said to have blind or bleeding piles. But the disease is sometimes external, when the tumors swell enormously. In this form there is more or less of a constant discharge, and that rather in small quantity. Sometimes the hœmorrhage is copious, affording temporary relief from pain. If the disease be very inflammatory, the tumors may remain swollen for a considerable time, and become indurated and be followed by great inconvenience.

The disease is often produced by the straining that attends a costive disposition. Costiveness is ordinarily the consequence of deficient functional action of the liver, and the other glands associated with that organ. A sluggishness of the liver, will inevitably be attended by a fullness and languid action of the vena porta, and its branches. The mucous lining of the rectum must partake of this fullness, it follows therefore, that the piles are consequent upon this catenation of errors.

TREATMENT.

Let the liver be excited by small doses of calomel and ipecacuanha, say one fourth of a grain of each, repeated once, or twice, or thrice a day. When the necessity of a stool is beginning to be felt, inject half a pint or pint of a tea of flaxseed or slippery elm. Under no circumstances let aloes be used in any form. Whenever a fit of piles is perceived to be coming on, in addition to the frequent employment of calomel and ipecac. and the regular use of the injections, let the patient be treated with a decisive vapor bath.

When the disease is external, the general treatment may be as before directed. If at any time, however, the inflammation and pain be considerable, the case requires bloodletting from the arm, and scarifications, or the application of leeches as a topical remedy for the tumors. After which give him the benefit of a decisive vapor bath, to be followed by ten or fifteen grains of dovers powder, adding two or three grains of calomel to each dose, and repeating the same every hour until he is at ease. A case may occur, however, in which the inflammatory condition may be such as to require one, two or more repetitions of the same remedies.

CHAPTER XXX.

RHEUMATISM.

Rheumatism is commonly considered under two distinctions—acute and chronic. The patient complains of pain about the joints and following the directions of the muscles; commonly attacking the knees and larger joints, in preference to those of the feet and hands; accompanied by considerable fever. Sometimes, however, the hands and feet, fingers and toes are all affected with pain, heat, and considerable swelling.

Acute rheumatism commonly attacks young people; or, to be more definite, people below the middle age. It is often set up by long exposure to cold and wet weather; by sleeping in damp sheets; by remaining long in wet clothes, particularly after fatigue; or by laying off winter clothing too early in the spring.

In acute rheumatism the patient at first complains of chilliness, with an uncomfortable feeling of numbness, pain or aching. Symptoms of fever soon follow, when the skin becomes pungently hot, and the pulse quick, full and tense and bounding. The repetitions of the strokes may vary, from one hundred to one hundred and sixty in a minute. As the symptoms of fever increase, the pain becomes more acute. The sensation is that of an aching or gnawing pain, with numbness and inability to move. Sometimes the symptoms are pungent, hot, and lancinating as those of the gout. The patient sometimes complains of pain and soreness over the

whole body; but more particularly, of some one joint. Sometimes the distress seems to fasten upon one limb; then lets go its hold and seizes another. The affected parts usually become red, swollen and tender to the touch; at other times, these appearances are slight in comparison to the degree of pain. As in gout, the least motion aggravates the distress which shoots along the course of the muscles, or the nerves and their branches. The pain and feverish symptoms, abate and increase, without regard to regularity, however, except that like almost all other diseases, the patient is most tormented at night. It may affect the intercostal muscles, when physicians term it pleurodyina, which is sometimes mistaken for pleurisy. The rheumatic condition may affect the muscles of the abdomen, then it in some sort resembles peritonitis. The muscles of the back are often affected, when it is called lumbago; in some instances, the sciatic nerve or the muscles which pass from the trunk to the lower extremities, are affected, this is called sciatica. These last, apparently local affections, frequently occur without fever, unless during the night, and have been commonly considered, instances of chronic rheumatism.

In acute rheumatism the tongue is commonly furred, often red, particularly round the edges, and fissured; there is loss of appetite, great thirst, scanty and high colored urine, depositing a heavy sediment. Sometimes there are nausea and vomiting; much internal heat, particularly in the region of the stomach; the bowels are generally costive, emitting an offensive odor. In some instances, there is headache with intolerance of light, and in some, inflammation of the eyes; in some instances, irritation and inflammation of the brain takes place; but of all parts, the sack containing the heart is most liable to become inflamed, during the course of a rheumatic affection. The skin is generally dry and hot, though sometimes it is attended with a profuse clammy sweat.

TREATMENT.

The first and most important remedy is blood-letting to an extent sufficient to subdue the tension of the artery. This should be followed by frequent small doses of tartarized antimony, so as to keep up slight nauseau without producing vomiting. In the evening apply the vapor bath, and continue the antimony through the night, remembering, however, not to disturb the patient when asleep. If the fever should rise about midnight, accompanied with a considerable increase of the pain and a tense pulse, let him be bled again, until the tension of the pulse is corrected ; the day following, continue the antimony as before, and if the pains increase at midday, and the pulse again become tense, blood-letting may be again repeated as before, until the tension of the pulse retires. After the third bleeding, sometimes after the second, and in a few instances even after the first, general blood-letting ceases to be useful. The vapor bath, however, may be profitably employed every evening and morning ; and when general blood-letting is no longer useful, cupping or leeching, often affords important relief to the affected joints. If the pain move from one place to another, it will be proper to chase it, from point to point, until it takes its departure. In the meantime, the other modes of treatment are to be continued. In some obstinate cases the vinous tincture of colchicum, in doses of half a drachm to two drachms, may be repeated twice a day with advantage. In addition to the colchicum, fifteen or twenty grains of dovers powder, or two or three grains of the extract of hyosciamus, or what perhaps would be far more agreeable, ten or fiften or twenty drops of Dr. McMunn's elixir of opium, at bed-time. After the violence of the symptoms have been somewhat subdued, it will be necessary to have recourse to blisters, and treat the case as one of retiring fever.

CHAPTER XXXI.

CHRONIC RHEUMATISM AND GOUT.

The chronic form of rheumatism sometimes succeeds the acute. It may be confined to one part part of the body, or it may be general. It is attended with a dull gnawing pain, which is increased on motion; with little or no fever or local inflammation. The joints sometimes swell and occasionally contract, and the muscles sometimes become rigid.

TREATMENT.

The vapor bath may be applied generally and topically; and repeated daily, once or oftener, as there may be occasion, to which may be added the use of antimony, when the case is feverish; and the colchicum and anodyne at night, as advised under the head of acute rheumatism. In either acute or chronic rheumatism, severe purging is injurious, yet the bowels must be kept in a good condition.

Gout is so nearly assimilated to rheumatism, it may be considered under the same chapter. There are marks of difference, however. Gout rarely attacks the young. Males are more liable to it, than females. It is more connected with internal disease than rheumatism; more particularly, with affections of the viscera involved in indigestion. It generally infests the smaller joints; rheumatism the larger. In gout, the pain is burning, pungent, and lancinating. In rheumatism it is gnawing and numbing, though sometimes it is also pungent and lancinating. In gout the external inflammation is more bright and intensely red. The swelling takes place more rapidly and the parts affected are more sensible and tender. Treat the case like rheumatism.

CHAPTER XXXII.

HŒMOPTHYSIS.

The name of this disease, signifies a discharge of blood from the air passages. It occurs chiefly under three forms. The first variety is the effect of a general exhalation from the mucous surface of the bronchi or air tubes. This variety is most common, and generally is not dangerous. It attacks women at their monthly periods, when the menstrual discharge is too scanty or is entirely suppressed. It sometimes befalls men, upon the sudden drying up of an old sore, &c. It is commonly preceded by some symptoms of fever; the bowels are out of order; tongue foul; the patient has restless nights, and feels most comfortable sitting half erect in the bed. At length there is cough, which is often constant and distressing with more or less difficulty of breathing. The pulse generally is quick and irritated. The affection often comes on insidiously; but the bloody expectoration commonly comes on with a cough. The material thrown up has an appearance like red currant jelly; sometimes the discharge is copious but generally it is moderate; at others it is of a mixed kind, small masses of blood mixed with mucus. Occasionally it is quite bloody, moderate in quantity and frothy. Again in some cases pure blood in large quantities, is discharged. Whatever its appearance, it is increased by exertion, whether of body or voice.

TREATMENT OF THIS FIRST VARIETY.

If the patient be plethoric, or if there be considerable fever and a tense pulse, one blood-letting is commonly necessary;

perfect rest, silence, abstinence from all stimulants, allowing a very small quantity of food at a time. The bowels should be kept in pretty brisk action, by the use of mild laxatives frequently repeated. If the bleeding still continue, with a pulse expressive of fever, excite some degree of nausea by small doses of tartarized antimony; or the stomach might be made to feel nausea, by the use of table salt. In some instances much might be accomplished by a single application of the vapor bath. After which, if necessary, give two, three or four grains of the acetate of lead, every third or fourth hour. In some instances, ten or twenty drops of the spirits of turpentine, in a spoonful or two of sweet milk, adding a little sugar and repeated every twenty or thirty minutes, has been found very effectual. In some instances, the muriated tincture of iron, in doses varying from fifteen to twenty-five or thirty drops, in a little cold water, and repeated every two or three hours, has been found to have a very happy effect.

A SECOND VARIETY OF HŒMOPTHYSIS.

The second variety commences with chilliness, cold extremities, followed by flushes of heat and redness of the cheeks, headache, frequent and tense pulse, palpitation of the heart, and a sense of weight at the pit of the stomach. The bloody discharge from the lungs, is attended with difficulty of breathing, with a sense of smothering, accompanied with pain. A sense of rawness, is felt in the throat, and a saltish taste in the mouth. The expectoration is a bright and frothy red or black and clotted blood, which is sometimes mixed with saliva or a little mucus. The pulse is frequent and full, though somewhat irregular; no considerable heat of skin, and sometimes profuse perspiration. The spitting of blood is copious; returning by fits, and accompanied by a convulsive motion, which has led to the expression of vomiting blood and sometimes indeed a portion may come from the stomach. The appearance of the countenance va-

ries, sometimes exhibiting intense redness, and at other times extreme paleness.

TREATMENT.

The most important point of difference, to be regarded in the treatment of this modification of hœmopthysis, is that the first bleeding, ought to be very decisive, so as to induce fainting. In other respects, the management may be nearly the same. In this distinction, however, the loss of blood by the hœmorrhage and by the use of the lancet, is so great, that special attention must be paid to the condition of the capillaries of the external surface. By the agency of the vapor bath, aided by friction and epispastics, the convalescence must be guarded. If too much paleness of the surface and concomitant stricture of the capillaries be permitted to remain, permanent congestions will be set up in the lungs, if an early return of the hœmorrhage, should fail to carry off the patient.

The third distinction referred to, in the preceding remarks, occurs in cases of consumption, of which it is not our intention to say any thing in this work.

Persons not having witnessed the effect of the vapor bath might be apprehensive that the application of heat would increase hœmorrhage from the lungs. For the removal of that difficulty, we have to state, that blood taken from the arm of a patient whilst under the influeuce of the bath, or immediately after, will coagulate in much less time than is required to produce that change under ordinary circumstances. Moreover it is much more florid in its appearance. We have not witnessed any injury done by the bath in any case if blood-letting preceded its application. Common sense will forbid the use of any excitant when a large vessel shall have been ruptured. Any such case, of course, is excepted.

CHAPTER XXXIII.

INFLAMMATION OF THE EYE.

The symptoms of inflammation of the eye may be divided into local and constitutional. The local symptoms are first a sensation, such as may be produced by a grain of sand in the eye; this is followed by a sense of heat and pain in the eyeball; increased secretion of tears; intolerance of light, and a feeling as if the eyeball were swollen. If the inflammation be in the external coat of the eye, the eyelids often become swollen, which is not an unfavorable symptom. This kind of inflammation, may be produced by the introduction within the eyelid, of sand, dust, lime, small insects, by tumors growing within the eyelids, and by the inversion of the eyelashes. It may also be produced by exposing the eye too long to the direct rays of the sun, or by looking too long into a tewel of a forge or furnace.

Among the constitutional causes, are a plethoric and feverish condition of the system, a disordered state of the bowels; as also a sudden healing of an old ulcer and the like. It may be produced, by a cessation of the constitutional discharges. peculiar to the fair sex; in children, by dentition; by a general chronic disease of the mucous membranes, by acute and chronic diseases of the skin; and in adults it may be the result of a misplaced gout or rheumatism. Some of the most severe and unmanageable diseases of the eye, follow small pox, scarlet fever, and measles. It might be proper to add here, that diseases of the eye may be produced by acrid vapors; by residing in damp and exposed situations; or by particles of dust unavoidably produced by the man's occupation.

TREATMENT.

Known local causes must be removed; suspected causes must be sought after by careful inspection, and it is often necessary in making search, completely to avert the upper eyelid. If lime or any irritating agent of that sort shall have been the cause, let fall two or three drops of warm fresh hog's lard into it, which may be repeated, as often the case shall require. Many slight cases will be relieved by washing in warm water. And when the irritation is protracted, apply over the closed eyelid soft cloths of suitable size dipped in water made mucilaginous by steeping in it, small bruised twigs of the sassafras tree or the shavings of slippery elm bark, first straining the mucilage, and repeat as it affords comfort. When these simple and mild remedies fail to afford the necessary relief, especially if the eye cannot bear a moderate light; or if pains dart through the head; and in all cases if there be fever with a tense pulse, a very decisive blood-letting is necessary. After the bleeding, the same day or evening a complete application of the vapor bath. The following day, a brisk cathartic ought to be administered. If the fever and pain return with any degree of severity, repeat the bleeding and the vapor bath; but if the symptoms be much more moderate on their return, use the vapor bath only, which sometimes will require to be sustained by the use of blisters, &c., managing the case, as if it were an instance of fever. If after all, the disease should be protracted, the case may be considered constitutional, and a minima pill may be given three or four times in twenty-four hours, aiding it if necessary, with some gentle aperient, to maintain a free state of the bowels; as small doses of epsom salts, or the milk of sulphur and cream of tartar mixed in equal quantities.

If the eye remain weak, after an inflammatory attack shall have been corrected, some of the eye-water recommended in the appendix may be used.

CHAPTER XXXIV.

HYDROCEPHALUS, OR DROPSY OF THE BRAIN.

This disease is ordinarily considered under two general distinctions—acute and chronic. Under the acute form, we shall notice four principal varieties. The first is attended with severe symptoms; such as fits of screaming; grinding the teeth; hot skin; frequent pulse; the countenance wild and staring; red face and eyes; these are often followed by convulsions; or the patient may become lethargic; children affected with this variety of the disease, die on the third or fourth day.

The second variety presents symptoms very mild and insidious, very often remaining unnoticed for several days. The child is known to complain, but it is thought to be peevish or teething, and too often nothing but the long continuance of indisposition and the emaciation of the little patient, give the alarm, when perhaps it is too late.

A third variety commences with irritation of the stomach, the bowels meanwhile, being confined or too loose. The child seems to have no fever through the day, but the febrile symptoms are very obvious at night. The physician and the parents are often deceived, considering it merely an affection of the bowels. After a while, the child will be quiet while lying in the cradle or on the bed, except that it grinds its teeth occasionally. It shows some signs of suffering, but neither cries nor frets, unless when raised up, but the moment the head is elevated it is greatly impatient and makes loud expressions of pain, probably because it feels headache or giddiness.

Another variety is that which occurs during the course of other diseases; such as fevers, measles, hooping cough, violent catarrh, bronchitis, &c. Too often when thus secondarily produced, it progresses into a condition past recovery, before it is observed. Convulsions perhaps give the first alarm; though sometimes, a comatose state, will give the first notice of the existing state of things.

TREATMENT.

Cases of the first variety, require decisive blood-letting, without delay, which in violent cases, ought to be followed up in the course of three or four hours by the application of leeches, but the leech bites ought not to be permitted to bleed after the necessary quantity is taken. Afterwards small doses of tartarized antimony, say one grain dissolved in twenty or thirty teaspoonsful of cold water, of which one teaspoonful is the dose, to be repeated every second hour, until the bowels shall have been sufficiently evacuated. If however the antimony fails to act on the bowels, give the fourth of a grain of calomel, in addition to each of its doses. In the meantime, cold applications may be made to the head, and it should be subjected to the action of the vapor bath. Great advantage has sometimes been gained by the use of an ointment of tartarized antimony, so as to produce a pustular eruption on the head.

As to the second variety, it ought to be suspected in every instance, where mild remedies do not afford relief. Infant children, are incapable of affectation, and peevishness is therefore an evidence of sickness. If teething be suspected, that difficulty may be removed at once, by a careful examination, and if necessary, scarifying the gums. This done, if the child continue to complain, let hydrocephalus be feared, and let measures be taken in imitation of those prescribed under the first variety, and be carried out as decisively as the

strength and temperament of the patient will justify. The same kind of vigilant caution with intention to avoid dangerous delay, should be taken in respect of patients when seized with vomiting, &c. as specified under the third variation, and a practice similar to that recommended under the second variation should also be employed under this.

When symptoms indicative of dropsy of the head occur during the course of other diseases, the same vigilance with measures suited to the condition of the patient will in like manner be proper.

In any case of this sort, under whichever of the varieties, when a determination of the circulation to the head shall have been set up, a paleness of the skin, which signifies a failure in the circulation of the superficial capillaries, on careful inspection may be seen showing the necessity of associating constant irritation of the surface, with the blood-letting or other evacuating means that may be employed. In any of the varieties in which this disease may be seen to make its approaches, we have seen the best effects to follow appropriate doses of calomel and ipecac., so apportioned as to produce pretty decisive purging.

CHAPTER XXXV.

DYSMENORRHŒA, OR PAINFUL AND DIFFICULT MENSTRUATION.

In dysmenorrhœa, the discharge is generally scanty. It is sometimes in natural quantity; sometimes it passes away in stringy shreds; in others a small organized mass, or lump, commonly called a false conception, or a mole.

A few days before the expected time, the patient complains of pain in the back, loins, and hips, and perhaps there is an appearance of some show. If the patient be required to give a particular account of herself, she will complain of weakness, weariness, a sense of weight or tightness, severe cramp or spasm, colic, bearing down, resembling the pains of labor, particularly when passing shreds, and still more so when the lump or mass is expelled. Her abdomen becomes swollen, sometimes tense, wind is heard moving about in the abdomen; her appetite is impaired; her bowels constipated; her stomach often irritable; sometimes affected with vomiting; and the urine is sometimes suppressed. Some women suffer pain for only one day, and others for the whole period.

TREATMENT.

When the painful condition occurs, let the patient be bled according to her strength and ability to bear it; then let her retire to bed and receive an application of the vapor bath; taking every two hours a cup of tea made of the herb hydropiper,* in the strength of one dram of the dried leaf to a pint of boiling water.

* Common smart weed.

CHAPTER XXXVI.

MENORRHAGIA, OR IMMODERATE FLOW OF THE MENSES.

When the discharge is more than habitual, or when it produces weakness or other unpleasant symptoms, it may be considered a disease. It is secondary, however, and is consequent upon some previous impairment of the patient's health.

For the general treatment, therefore, the constitutional error must be detected, and corrected. In a majority of instances, the liver and venæ portæ are in fault, and may be corrected by the use of the minimæ pills, one to be given in the morning, one in the afternoon, and one at bed time, for five or six days. Then one, morning and evening for as many more days; after which one every night only, until the periodical time returns.

To arrest the profuse discharge when it recurs, let the patient retire to bed, and be treated decisively by the vapor bath, which may be followed by a dose of fifteen or twenty grains of dovers powder.

In a case of this sort, pains must be taken to improve the health and strength of the patient, by the use of good wine, frictions repeated night and morning; passive exercise, such as riding in a carriage, &c. and in many instances the tincture of cantharides, in doses from ten to twenty drops, repeated three or four times a day, with or without the addition of from five to ten drops of the muriated tincture of iron.

Sometimes also, we have found very great benefit result

from the use of the prussiate of iron, in doses of ten to fifteen grains, given in a little new milk or cold water, and repeated three or four times a day, or oftener if necessary. In each instance of its recurrence, let the same course be pursued, according to circumstances. The inconvenience here treated of, is often produced by a malposition of the uterus. In every such instance, before a cure can be effected, the organ must be restored to its place by skillful manipulation.

An essay will be found in the appendix giving useful instruction in respect of a misplaced uterus, which will claim attention when necessary. There are many instances of the inconvenience, of which this chapter treats, the effect of imprudence. Young ladies of very delicate constitution may be the subjects of it, in consequence of tight lacing. The exchange of a corset for a bandage as tight or tighter, does not lessen the injury. The compression imposed upon the blood-making organs, by either of these pernicious fashions is nearly the same. Tight lacing therefore must be discontinued.

Anxiety of mind may be greatly injurious. If it exist, let the cause of it also be removed. These done, medication may be effectual.

CHAPTER XXXVII.

CESSATION OF THE MENSES.

When women arrive at that age, which by them is commonly called the turn of life, the periodical discharge becomes irregular, sometimes obstructed for a season and then returns again.

Symptoms often occur, such as are significant of pregnancy, and in some instances there is considerable uterine pain, with a dragging sensation in the back and groins; more or less fever; head-ache, with a full strong pulse; irregular state of the bowels; furred tongue; imperfect digestion; and sometimes active hœmorrage from the womb.

These appearances often give alarm, and lead to the employment of quackeries, which seldom are useful, and often very mischievous. Many women suffer no particular inconvenience at this period, some have better health than before, especially such as have suffered from dysmenorrhœa.

TREATMENT.

When the symptoms are slight, nothing more is necessary than a proper attention to diet, and to the state of the bowels; to keep on warm clothing and to use proper exercise.

Should any particular organ be threatened with inflammation, as the head, the lungs, the stomach, the liver or bowels, the treatment should be addressed to the organ that may be threatened, as in any other instance of inflammatory disease. In such an event, one blood-letting at least is commonly necessary. Afterwards a repetition or two of the bath, and attention to the state of the bowels will be sufficient.

CHAPTER XXXVIII.

CHRONIC HYDROCEPHALUS.

This variety of the disease frequently follows the acute form, from neglect or mismanagement; the one form having run into the other; but ordinarily it is insidious in its approaches, and progresses slowly. Possibly a stranger may take the first notice of the enlargement of the child's head; which may continue to be the most prominent symptom.

TREATMENT.

The symptoms are to be met as they arise. If signs of fever, with or without pain, recourse may be had to the use of leeches, frequent blisters, or counter irritation, by the ointment of tartar emetic, attention to the bowels by the agency of calomel and ipecac., regulating the diet, &c.

In any, and in all cases of affections of the head, if the state of the skin indicate the necessity of the vapor bath the patient's head should be kept cool during its administration.

CHAPTER XXXIX.

AMENORRHŒA.

If the menses do not begin to flow at the age when nature requires it, the patient becomes restless, peevish, and feels incapable of executing her task, or taking her place in the performance of her share of domestic duties. She complains of weariness, langour, and debility. Her flesh wastes away, her countenance becomes pale, and her skin sallow. She loses her appetite, and desires to eat chalk, common earth, and lime, if she dare, &c. Her feet and ankles swell, her abdomen is enlarged with flatulence, particularly after meals and towards evening. Her urine is scanty or copious, her bowels torpid, and feet and hands cold. Some feel great anxiety about their condition, others indicate the greatest listlessness in regard of every thing. Ultimately a cough and hurried respiration, together with expectoration. Her bowels, which were at first torpid, become irritable, and are affected with incessant diarrhœa. Hectic fever follows, and the patient dies greatly emaciated, with or without the appearance of consumption.

Sometimes however, the symptoms take a different course, and the patient is seized at once with symptoms of consumption.

TREATMENT.

If the patient be in robust and plethoric habit, at the periodical time, which may generally be known by the recur-

ence of pain, &c. let her be bled, which may be repeated at one, two, or three consecutive monthly periods. After the bleeding, let her take three compound blue mass pills every third hour, till they operate; after which, having first bathed her feet in very hot water, let her retire to bed and be treated by the vapor bath.

If this practice, after having been two or three times repeated, should produce the desired effect; during the succeeding interval of time, let the patient take ten drops of the saturated tincture of cantharides, three times a day, gradually increasing the quantity to thirty or forty or even sixty drops. It must be remembered, however, that this remedy must be suspended if it produce any irritation in the bladder or urethra, when the patient may be comforted by taking small doses of camphor and flax seed tea, or a mucilage made with the twigs of sassafras or slippery elm bark.

If this treatment should fail altogether to give relief, the physician should examine and know if any malformation, or want of perforation of the hymen, or of the os tincæ, may be the cause of delay.

Any case of a suppression of the menses, whether it be the effect of cold or other accidental cause, will commonly be relieved by similar treatment.

CHAPTER XL.

PUERPERAL, OR CHILD-BED FEVER.

As in other forms of fever, so in this, there are two varieties; the one is marked with symptoms almost exclusively inflammatory, and seems to be the result of a strong vascular action, in which the arteries are chiefly concerned. Which variety is marked with conspicuous violence, and requires a speedy and decisive treatment. The other variety is more insidious being more or less dependent for its origin, on venous congestion. Both of these varieties are accompanied by symptoms of peritoneal inflammation.

The variety which is most directly inflammatory, may be produced by violence during delivery; or by the injudicious use of stimulants, when at the same time, an irritable condition of things is present, requiring a copious blood-letting. In either of these instances, the symptoms of puerperal fever may occur within twenty-four hours after delivery; though sometimes not until the expiration of a few days. When venous congestion is concerned in the production of puerperal fever, we have for years believed that the predisposing cause, if traced to its origin, would be found to have been, neglected constipation, by which accumulated scybala on the one side of the wall of the intestine, presses it so hardly against some solid part of the fœtus as to weaken its structure, or the head or nates on the one side, and the hip of the mother by the weight of the fœtus press the uterus or a portion of the intestine, so as to produce a similar effect on one of those organs. The pressure being removed by the birth of the child, the enfeebled capillaries are injected to a state

of congestion, which, if considerable, must sooner or later set up irritation and consequent inflammation.

By whatever cause puerperal fever shall have been induced, the symptoms are, rigors, shiverings, with thirst, fever, hurried and tense pulse, sickness and vomiting. These are soon followed by pain, tension or soreness, either over the whole abdomen, or it may seem to be confined to one spot. These increase rapidly, and the belly in a short time, becomes greatly swelled, exquisitely tender so that the weight of the bed-clothes can scarcely be endured, and the least motion gives great distress to the patient. The skin is hot, the tongue white and dry, and the milk and the lochia are usually suspended. The bowels are either costive or there is a purging of dark colored fœces; and sometimes an incessant inclination to urinate. As the disease advances, the symptoms of inflammation and irritation, increase; difficulty of breathing; the pulse small and frequent, beating from one hundred to one hundred and thirty strokes in a minute. The swelling and tension of the belly, increase; the vomiting continues; the pulse becomes smaller, more frequent and irregular; the extremities cold; the evacuations by urine and stool become involuntary; the pains cease and the patient dies, about the sixth or eighth day, of her disease.

As in other forms of fever, so also in that of child-bed, the condition of things may correspond to that which is called congestive, and find a fatal termination in the same speedy manner.

There is a goodly number of physicians of high reputation, who are of opinion, that child-bed fever may be contagious. We have never met with any case, which in our estimation, could support that opinion. We believe with Colombat and others, that hospitals devoted to lying-in women may furnish appearances, which might lead to the conclusion, that the disease may become epidemic. Such supposed epidemics have occurred at Paris and other hospitals in France; at Ab-

erdeen in Scotland, and at Leeds and Sunderland in England, and in various parts of the United States. In our estimation, however, this is unimportant, and would prove nothing but a want of proper management in those institutions.

TREATMENT.

Inasmuch as lying-in women are so liable to an attack of this formidable disease, it is of the utmost importance, that the best prophylactic means should be used, in all cases. Pending the time of gestation a costive habit should be guarded against and corrected if it occur. A prudently selected diet, with an occasional dose of castor oil when necessary, or of epsom salts with manna, if it be preferred, or of calcined magnesia, &c., may answer all purposes in this respect.

If at any time a fixed pain should be felt in either hip or the back, and especially if it be more comfortable to lay on the side affected by the pain; the patient should invariably compel herself to lie on the opposite side, if the pain be in the hip, and inclining over towards the face if in the back.

Under all circumstances a feverish condition at any time during pregnancy, should be corrected, and if necessary by blood-letting. If in time of parturition the woman be seized with pain in the head, or fever to any considerable amount, a decisive blood-letting will be necessary to her safety.

If she be much exhausted by the efforts of the labor or by its protraction, or by considerable hemorrhage, let her be subjected to the action of the vapor bath, which may be followed by a dose of fifteen or twenty grains of dovers powder, with or without the addition of five or ten grains of calomel, to be followed six hours after, by a dose of castor oil, &c.

Whether these preventive measures shall have been used or not, and the rigors, chilliness, thirst, &c. that usher in child-bed fever shall occur, it must be met by very decisive treatment.

If the case be inflammatory, corresponding to the description given above, blood-letting to an extent necessary to subdue the tension of the pulse; and if after one bleeding the pulse becomes slower and fuller, and the pain subsides; a return of the pain will indicate the necessity of a repetition of the blood-letting; which should be followed by a complete evacuation of the bowels with some gentle cathartic. A recurrence of similar circumstances will indicate the propriety of a third repetition of the same practice. In the mean time it will be found useful to employ the vapor bath after every blood-letting. Afterwards the case may be treated in the manner which would be proper in a case of any mild fever.

If however, after the first decisive blood-letting the pulse shall remain frequent, and other symptoms not be materially improved, the inference may be safely drawn, that a condition of things, such as sets up and maintains permanent irritation exists in the case. Let the vapor bath be applied with decision, and be followed by a dose of dovers powder, say five grains, with one grain of calomel, to be repeated every second hour, for the space of ten or twelve hours, when a mild laxative dose, aided by an injection of flax seed tea may be used; after which repeat the bath.

The condition of the abdomen, in the mean time, may be soothed by the application of a flannel or other soft woolen cloth, tightly wrung out of hot water, and large enough to cover nearly her whole front. If the pain and fever still continue, and the pulse become less frequent at the expiration of twelve hours, the patient may be again bled from the arm to an extent sufficient to make a decided impression, but if the pulse remain frequent, let a sufficient quantity of blood be drawn by cups, as nearly as practicable over the pain, or apply twenty or thirty Spanish leeches, if they can be had, if not, fifty or sixty of those common to this country.

After this superficial bleeding, again repeat the vapor bath

fore and continue the use of the dovers powder, &c., still continuing the application of the hot cloths, and repeat the injection once or oftener in the next twelve hours. The blood-letting or cupping, &c., may be continued until the violence of the symptoms abate, after which the case may be treated as if it had been fever in any other form, remembering however, that a woman after parturition ought not to be much on her feet, or sit in an erect position much of her time till after the expiration of her month. It is possible after the violence of the symptoms have subsided, that the case might assume typhoid appearances. Then let the treatment be such as would be proper under similar appearances, in any other form of fever.

It may not be out of place to add here, that if convulsions occur in the time of labor, under all circumstances pertaining to such a condition of things, very decisive blood-letting is necessary to save the life of the patient. One, two or three blood-lettings repeated, as indicated by the state of the pulse, have been necessary in all the cases that have come under our observation, and we have taken three, four, five or six pints, in different instances, and have been successful in every case.

A severe case of puerperal fever, is generally protracted long enough, to reduce the patient very much; and the convalesence needs to be guarded. If repeated blisters shall have been necessary in managing the case, it will very much contribute to her safety, to continue their use, till the patient shall be sensible of increasing strength. Such diet as may suit at the first, when she is beginning to improve, had better be continued, till she is able to sit up without much inconvenience.

CHAPTER XLI.

PHLEGMASIA ALBA DOLENS, VULGARLY CALLED MILK LEG.

A swelling of one and sometimes of both the lower extremities, occasionally happens after child birth. In most instances a pain or tenderness is felt in the calf of the leg, extending up and down, which is followed by a swelling of the limb, until the whole extent of it, from the hip to the toes is greatly enlarged; which, in the course of twenty-four or thirty-six hours, expands the limb to twice or thrice its natural size.

After the swelling shall have taken place, the skin presents a pale, white, glossy color; is hot and tense, not being pitted by pressure with the finger. The swelled limb becomes exquisitely painful and tender, the patient not being able to move her body or leg. Her pulse is seldom below one hundred and twenty, often one hundred and forty in a minute. Her tongue is white and moist, with thirst and loss of appetite. The lochial discharge, and lacteal secretion, are in some instances suppressed, in others they continue. The inguinal glands are swelled, painful and tender, and the abdomen somewhat enlarged.

TREATMENT.

If the pulse be strong, blood-letting once or twice may be necessary. If the glands in the groin be very painful, leeches may be applied over them. The patient's bowels should be kept in comfortable condition.

Professor Davis, of the London University, has successfully proved, that the disease is consequent on a congestion of the veins of the limb affected. Our practice has led us to adopt his theory. Therefore, after having bled the patient as far as it may be necessary, we would apply the vapor bath decisively; letting the affected limb be so held by a female assistant, that it shall receive at least its full share of the heated air; and it is better that the bath should be repeated at least once in every twenty-four hours. As a local remedy, we apply strips of leather, or cloth about two and a half inches wide, of suitable length; one to reach from the groin to the knee, the other from the knee to the ankle to be spread; with the mercurial plaster, and laid upon the inner side of the limb, so as to cover very nearly the whole length of the veins and lymphatics; which done, we wrap the limb in two pieces of silk oil cloth, cut in shapes to fit conveniently; around the whole we apply a bandage, moderately tight.

As the plaster is not very adhesive, it can be retired when the bath is used, and replaced after its application. In all other respects, that is, the medication and nursing, may be the same as that which is proper in puerperal fever.

Convalesence commonly progresses slowly, after an attack of milk leg. The patient should therefore be cautious as to her diet, confining herself to such articles as are known to suit; and preferring such of them as have the best effect on the bowels.

Very often the patient, after getting up, experiences more or less lameness in the affected limb, especially after much walking, or long standing on her feet; she should be careful in these particulars, and use much friction.

CHAPTER XLII.

SUPPRESSION, RETENTION, AND INCONTINENCE OF URINE.

This affection, in most instances, is no more than a symptom of some other and more serious disease.

TREATMENT.

If there should be present considerable signs of fever, with tense pulse, let the patient be bled according to circumstances, to be followed by a gentle purge, after which apply the vapor bath; which might be repeated once or twice in twenty-four hours. During the intervals of the bathing, let him take once in three or four hours, from three to five grains of super. carbonate soda, and drink moderately of an infusion of uva ursi, made with about one drachm to the pint of water, which should be kept nearly boiling hot, for fifteen or twenty minutes, and of which the patient might drink from one to two pints, in twenty-four hours; or he may drink a tea made of horse-mint, to the same amount. He might also use the minimæ pills, repeated two or three times in twenty-four hours.

If this simple treatment should fail of affording relief, some serious affection of the brain or of the nervous centres which preside over the functional action of the abdominal viscera, particularly of the kidney, is to be apprehended.

RETENTION OF URINE.

This affection is often merely accidental, and might be corrected by the same remedies, which are proper in suppres-

sion of urine. If they should fail, the only proper alternative, is a recourse to the catheter.

INCONTINENCE OF URINE.

This inconvenience commonly befalls children, and often happens in consequence of negligent nursing. Possibly the child or the youth may be a sound sleeper, and discharge his urine in a dream.

If no other cause exists to keep up this filthy habit, nothing more will be necessary than to wake up the patient, and cause him to urinate every third or fourth hour, through the night.

If it should be consequent on an unnatural relaxation or want of sensibility of the urethra, give the patient ten drops of the saturated tincture of cantharides, three or four times in twenty-four hours, gradually increasing the dose, up to forty or fifty drops; still continuing to wake him up nightly, as before advised.

If the patient be of feeble constitution, and particularly if his face or feet are inclined to swell—in addition to the management above advised, he should take three or four times a day, eight or ten grains of the precipitated carbonate of iron. It may be mixed, when taken, in a little molasses, or be washed down with a spoonful or two of cold water. It might be useful to drink a moderate portion, daily, of a decoction or tea of sweet fern.

CHAPTER XLIII.

COLIC OF INFANTS.

There is a species of colic, which occurs during infancy, under circumstances where we have no reason to suspect, as its cause, any disturbance of the digestive function either from the bad quality or undue quantity of the food. We have known it to occur daily, during the first month or two, and nearly at the same period of the day—generally towards the latter part of the afternoon. In slight attacks, the infant becomes suddenly very fretful; draws up its knees towards the abdomen, and cries for a few minutes; and then resumes its usual quiet state, as though nothing had occurred. The attacks may be repeated at shorter or longer intervals, and seldom cease permanently, or for any length of time, until a portion of gas is discharged by the mouth or pexanum, or an evacuation of fœces, often thin and frothy, occurs. In more violent attacks, the infant commences, suddenly, to utter sharp, piercing screams, which are often long continued or only interrupted by a few moments of quiet; the knees are forcibly drawn up, or its legs are drawn up and extended in rapid succession; the trunk of its body is occasionally, forcibly extended, with the head thrown back, and the hands firmly clenched. The expression of its countenance indicates severe suffering; its face being occasionally flushed or covered with large drops of perspiration. The abdomen is often distended, tense and tympanitic, or presents an irregular or knotted surface. No pain is induced by pressure upon any part of the abdomen; gentle pressure and frictions appear, indeed, in most cases, to afford decided relief.

Notwithstanding the severity of the paroxysms, in this form of infantile colic, the child, immediately upon their cessation, is quiet, cheerful, and playful, and exhibits nothing in its appearance, to indicate the severity of its recent sufferings; its appetite is seldom impaired, the digestive and nutritive functions are, in no degree, disturbed or interrupted, and the general health, seems, often, actually to improve; as, Dr. Dewees very correctly remarks, some of the fattest and healthiest children are those affected with it.

During the paroxysms, the warm bath and warm fomentations to the abdomen, are among our most valuable remedies; we have found prompt relief, often to be produced, by applying to the abdomen, after immersion in the warm bath, a cataplasm, formed of hops, steeped in warm water, and enclosed in a thin gauze bag. The bowels should be opened by an injection of warm water, to which a few grains of assafœtida, dissolved in milk, may be advantageously added. Internally we have occasionally administered, with prompt relief, a few grains of camphor water, or of spirits of turpentine, rubbed up with sugar. Three to five drops of spirits of turpentine may be given to an infant, and repeated, every one or two, or three hours, according to the urgency of the case. When, however, the paroxysm is one of uncommon severity, and does not promptly yield to the means that have been enumerated, we have never hesitated to administer an opiate, either by injection or by the mouth, graduating the dose according to the age of the infant, and carefully watching its effects, before venturing upon its repetition. We have been much pleased with the action, in the colic of infants, of a watery infusion of opium:—five grains of opium may be infused, four hours in two fluid ounces of water; the infusion being then filtered, ten grains of bicarbonate of soda, are to be added; of this, ten drops may be given to a child, within the mouth, in a little sweetened

aniseed water—the same dose being repeated after an hour, if necessary. (See Condie, 193, &c.)

Perhaps there is no remedy better than the following, viz: Take calomel ten grains, ipecacuanha ten grains, morphia one grain, one ounce of loaf sugar, and ten drops of the essential oil of anise. Carefully powder four or six grains of red sanders; then, grind the six articles together until very intimately mixed. Of this preparation give, to an infant one or two weeks old, one or two grains and repeat every half hour, until the child is easy. As it grows older, the dose may be gradually enlarged. Of this preparation, two grains contain the twenty-fifth part of a grain of calomel, the same of ipecacuanha; and the two hundred and fiftieth part of a grain of morphia, which is equal to half a drop of laudanum.

Mothers are too prone to teach infants to eat articles of diet, such as please their own palates. The breast furnishes the proper food for babes. If this fail, and the child is fed as a matter of necessity, sweet milk and water, with a little sugar, is as strong nourishment as an infant can digest. As it grows older, a very small portion of wheat flour or arrow root starch may be added.

If an improper diet shall have been the cause of colic, a discontinuance of the imprudence will relieve the child, perhaps, without any kind of medicine.

CHAPTER XLIV.

CHOLERA INFANTUM, OR SUMMER SICKNESS OF CHILDREN.

Cholera infantum occurs most frequently in large cities, and the cases are more numerous and fatal in those parts of the cities, which are least cleanly, with deficient ventilation. There are also country places in low sultry situations, in which, this truly alarming disease occurs, at some period, almost every summer.

An insalubrious atmosphere causes debility. The children kick off the bed-clothes, almost every night. The superficial capillaries are brought into a condition of atony. At length the circulation is introverted and the fluids of the system run off by the bowels with such rapidity, that unless the morbid determination can be speedily arrested, the child so affected will be lost.

This disease usually commences with a profuse diarrhœa. The stools are often green or yellow ; more commonly, however, they are of a light color and very thin. In a short time vomiting also takes place. The stomach becomes exceedingly irritable, rejecting every thing taken into it. The child shows intense desire for cold water, which in like manner is immediately rejected.

The pulse in the commencement of the attack, is quick, frequent, small, and generally tense. By the diminution of the capillary action, an accumulation of sensorial power is produced, which is determined upon the vascular system, particularly upon those branches which lead to the abdominal viscera. A fever is set up in those structures, which is

evinced by the state of the pulse, which is quick, frequent and small, demonstrating the limited condition of the circulation; it is also tense. We were particularly careful in our remarks on the pulse to specify a tense pulse as a most certain indication of the necessity of blood-letting; inasmuch as it invariably demonstrates an injected condition of the arteries. In an instance of cholera infantum, the arteries are tense from the common cause, a constricted state of the capillaries. But those structures are so much enfeebled, that they would fail to react after a bleeding, and therefore in most instances the case would be made worse by loss of blood.

The tongue is covered with slimy mucus, corresponding to the relaxed condition of the mucous lining of the alimentary canal. If the child is not immediately relieved, in the course of a few days the skin becomes dry and harsh. The debility of the capillaries becomes so great that they cease to perform the function of perspiration; heat accumulates in the skin from deficiency of the natural medium of evaporation. These last remarks, however, apply more particularly to the head and abdomen. The extremities retain their natural temperature till the prostration is very great, and then are decidedly cold. There is in every instance intense thirst, and a paroxysm of fever occurs every evening, when the child becomes more fretful, moans, requires frequent change of posture, draws up its knees, and sometimes screams out with pain. In some instances the abdomen becomes tumid and is tender to the touch. In others the attack is so violent and the prostration so sudden, that the patient dies within the first twenty-four hours. Sometimes also the patient is affected at an early period with delirium; his eyes become red and look wild; his head is tossed backwards and forwards; and he tries to bite or scratch his nurse.

In general the disease runs a protracted course. The patient becomes greatly emaciated; his eyes languid, hollow and glassy; his countenance pale and shrunken; his nose

sharp and pointed, and his lips thin, dry and shriveled; the skin upon his forehead smooth and shining, as if stretched tightly over the bone. The child lies as if constantly dozing, with his eyes half closed, and appears to be so insensible, that flies may alight upon his half exposed eye-balls, without exciting any evidence of consciousness.

Dr. Condie, in a highly respectable work published in 1844 on the diseases of children, says "the disease is evidently dependent for its production, upon the action of heated, confined and impure atmosphere, directly upon the skin, and indirectly upon the digestive mucous surface, at a period, when the latter is already strongly predisposed to disease from the effects of dentition, and from the increased development and activity of the muciparous follicles which takes place at that period." "The influence of a high atmospheric temperature, in the production of cholera infantum, is shown by the fact, that its prevalence is always in proportion to the heat of the summer—increasing, and becoming more fatal, with the rise of the thermometer, and declining with the first appearance of cool weather in the autumn. A few hot days in succession, in the month of May, are sufficient to produce it; while, during the height of its prevalence, a short period of cool weather, will diminish, if not entirely suppress it. In those infants, who have been prematurely deprived of their natural aliment, or whose diet is composed of crude, indigestible, stimulating, or otherwise unwholesome articles, a heated and confined atmosphere would appear to be alone sufficient for the production of the disease; but the extensive prevalence of the cholera of infants, during the summer months, is not dependent alone upon the influence of a high atmospheric temperature, and confined to an impure air. Hence it is almost exclusively confined to the larger and more crowded cities, of the middle and southern states; and in these, it is especially prevalent and destructive to life, among the children of the poorer classes, inhabiting small,

ill-ventilated houses, situated in narrow, confined lanes, courts and alleys, or in situations abounding with accumulations of filth. When it occurs in the country, which is rarely the case, it is almost exclusively in low, damp, and otherwise unhealthy situations. By many writers, dentition and errors in diet, are enumerated among the causes of cholera infantum. They are unquestionably to be viewed, in many cases as predisposing, and in others, as exciting causes; but we have, in no instance, known an attack of genuine cholera infantum to occur, without exposure to the influence of a heated, stagnant, and more or less impure atmosphere; and this alone, in the great majority of cases, would appear to be the sole cause of the attack."

We consider the account of this disease as thus given by Dr. Condie, as being strictly correct, and in perfect consent with the views which we wish to inculcate. It follows, therefore, that the first step to be taken in order to effect a cure, should be to recover and establish the excitement of the skin.

Let the child be washed in water as hot as it can be borne without giving pain, using a cloth with good soap. The cleansing operation should be performed effectually, but with some degree of expedition.

Having washed off the soap, the whole surface should be carefully wiped with considerable friction, so as to redden the whole surface. The same treatment should be repeated three times a day; in the morning to prevent the occurrence of any degree of chill; again in the middle of the day to afford a substitute for the natural perspiration which will correct the existing appearances of fever, and at night to prevent a return of the introversion of the circulation, which without this precaution takes place more or less every night.

This kind of attention to the skin will in mild cases often be sufficient, without any internal remedy. The child, however, if it be at the breast, should be prevented from taking

any additional food. It might be permitted to drink gum water, say an ounce of gum arabic dissolved in a pint of water, or it might use the whey of new milk, turned by the addition of an equal quantity of sour milk, mingled with it and set on a light fire, till they turn. This may be sweetened a little, adding a small portion of gum.

The patient should not sleep too near to the ground. If practicable prefer a second story. His bed should not be too soft, and the room had better be large and airy. His night dress should be made of flannel, with a body and legs, so as to prevent its being kicked off, whilst the child sleeps.

If the washing and management as above advised should not be, at once, effectual; apply the vapor bath, every morning and evening, as an auxiliary remedy for the skin, and internally give one-fifth or one-sixth of a grain of calomel, to which add the same quantity of ipecacuanha, the two articles rubbed up with a little loaf sugar, and repeat every second or third hour. If, however, the stomach be irritable and reject the medicine in this form, use the calomel only, and when carefully ground up with the sugar, put the powder so prepared, in a dry state, upon the child's tongue.

After using the vapor bath, continue to wipe off the sweat, until it ceases. Then rub the skin extensively with hog's lard made a little pungent by stewing it over a very moderate heat, having first added a little cayenne or common red pepper, and a moderate portion of salt.

Those who have the means, will act prudently, to let their children spend their first two or three summers in healthful regions. Such as are compelled to remain with their families in sickly situations, should be careful to keep a good fire night and morning, and all day during wet and cold weather.

In treating sick colored children, as well as those that are white, if called early and their condition will certainly warrant a safe reaction, we let blood to prevent congestion; then order the washing, wiping, anointing with the liniment made

stimulant with the pepper, (we mean cayenne pepper and salt,) which should be accompanied with friction as severe as can be borne, and then wiped off very carefully. These steps having been carefully taken, we give to very young children calomel and ipecacuanha, of each one-tenth of a grain ground up in sugar, repeating the dose every second hour till it produces decisive effect; afterwards regulating the doses according to their effect. To children from six to twelve months old, half a grain of each, advancing to a grain or two grains till the effect shall be satisfactory.

If the case will not admit of blood-letting, we rely on the calomel and ipecacuanha. Whether we bleed or not, we order the washing, liniment and friction to be performed at the fire, to get the benefit of a pungent heat every evening and morning, and as many times in the day as the child shall become too hot or too cold, or very restless. All cases of fevers befalling children, and indeed persons of whatever age, ought to be treated according to these views; adjusting the medication and management to the ages and various degrees of strength of the different patients.

CHAPTER XLV.

TABES MESENTERICA.

In this disease there is an enlargement of the abdomen, attended by great emaciation of the whole body. It commences in an irregular state of the bowels. After a while, the strength of the patient fails; his extremities and his face become emaciated, whilst at the same time, his belly is becoming larger. Sometimes his appetite is ravenous; at other times he is indifferent about eating. He has great thirst and frequently complains of pains in the bowels. Some in this affection, show signs of fever; others are quite free from such symptoms, except that there is a febrile attack during the night, which goes off with a perspiration towards morning. With some the abdomen feels knotty and doughy; sometimes it feels tight and drum-like. Commonly, at first the enlargement of the abdomen, is produced by wind, in consequence of the weakness of the bowels; but as the disease progresses, an effusion takes place in the cavity, and the glands of the mesentery become enlarged. By and by the child is exhausted by excessive purging, or dies by disease set up in some other part or organ of the body—commonly the brain or the lungs.

This disease is the consequence of sub-acute inflammation neglected, or improperly treated.

TREATMENT.

If the case be recent, let the patient take one-fourth of a grain of ipecacuanha, together with the same quantity of

calomel, two, three or four times a day, or as often as his bowels will bear it, not to be too much purged. Let this treatment be continued about one week. Then give three doses a day of the syrup of blue mass, rhubarb and ipecacuanha, so as to regulate the bowels properly. In the meantime, his skin be treated with the pepper liniment and friction, aided by heat, in imitation of the practice advised for the management of dyspepsia.

When this affection shall have been of long standing, the glands of the mesentery become so much enlarged, that it unavoidably requires much time to accomplish a cure. Those children who are the subjects of it, are almost without exception, intemperate eaters. While under treatment, therefore, they must be lightly fed, and for months they must be kept under great restraint after it may be thought that the disease is removed. Without these precautions, the patient will be the subject of relapse. The original cause of the malady, being permitted to act on a system habitually under its influence, common sense must perceive the danger of a return of all its original mischiefs.

CHAPTER XLVI.

GANGRENE OF THE MOUTH.

There is a painful and not unfrequently fatal disease, which has occasionally appeared in our larger cities, and sometimes in country places, known by the name of gangrene of the mouth, water canker, cancrum oris, &c.

This remarkable affection is not the termination of ordinary inflammation, but often comes on without pain, heat or redness; yet with a hard swelling in one or both cheeks, with so little tenderness, that "the patient seems almost unconscious of it; and but for the enlargement being obvious to the eye, the mischief would probably escape notice altogether in its early stage. Indeed, as it is, the tumefaction is occasionally mistaken for affections of a much less serious description. The skin of the cheek has a peculiar glossy or waxy appearance. On examination of the mouth, we detect a whitish or ash-colored eschar, without any inflammatory redness of the surrounding membrane; generally in the centre of the cheek, or in the commissure of this part and the lower jaw. The gums look pale and spongy. There may be a certain degree of langour, dulness, or slight feverishness; but not less frequently there is nothing to call particular attention to the general health of the patient. Such are the principal phenomena of the first stage of the disease. As it advances, the slough spreads rapidly over the interior of the cheek and lip, and invades the gums. Saliva escapes in great quantity; at first clear, afterwards mixed with dirty sanious matter, which has a horrible fœtor. About the same time, the outside of the cheek presents a pale, shy spot, which soon becomes livid and sphacelates. The extension of the

disease to the bony structure is evidenced by the loossening of the teeth, which are soon thrown off with portions of the alveolar process. The fluid discharged appears to have a corrosive quality; for the angles of the mouth and the lower lip, sometimes become new centres of mortification. We have known both sides of the face attacked in the same individual; and there are cases on record, in which all of the soft parts of the face, as well as the upper maxillary bones, the palatal, the nasal, and even the ethmoid, were involved in the destruction."

The preceding description of the disease by Dr. Simonds, as observed by him in Great Britain, corrresponds entirely with the appearances in this country, and especially in Philadelphia city, by Dr. B. H. Coates, who had charge of one hundred and seventy cases within three months in the children's asylum.

TREATMENT.

Besides those internal remedies, which suggest themselves for the correction of the stomach and bowels, Dr. Coates found the following local application to be far more efficacious than any other: Sulphate of copper, 2 dr.; powdered cinchona, ½ oz.; water, 4 oz.; to be applied twice a day to the full extent of the ulcerations and excoriations. The cinchona is not absolutely necessary, but serves to retain the sulphate longer in contract with the edges of the gums. Simple ulceration and small gangrenes, adds Dr. Coates, as well as troublesome excoriations, when not in the last stage, yielded promptly to this remedy; the good effect being generally visible from the first application.

"The separation of a portion of the periosteum from the fangs, within the socket, which was universally found, whenever the tooth was loose, among two or three hundred specimens, proved the existence of the disease in a deep narrow crevice, into which it was impossible, by any contrivance, to insinuate the lotion. This cavity was laid open by extract-

ing the tooth; and when the remedy was applied, the sanatory effect was surprisingly prompt. The universal rule was to extract all teeth, the moment they were discovered to be in the slightest degree loose, and the blue wash above described became the standing remedy." In addition however, the following prescription derived from the late Dr. Parish, will be found extremely beneficial: Sulphate of zinc, 1 dr.; water, 2 dr.; and then add of pure honey and tincture of myrrh, 2 oz.; to be applied the same as the preceding lotion.

As often as we have met instances of this affection in children, the parents and friends were disposed to attribute them, to an injudicious use of calomel; greatly to the disparagement of the attending physician. It is probable that the peculiar tendency of mercurial action to affect the mouth, may hasten, and in some instances excite the morbid state of the lining membrane of the alveolar processes, which in our opinion, is the portion of structure that first sphacelates. The disease is of a secondary character, and befals no child whose cuticular surface is not so affected as to exhibit the "peculiar, glossy and waxy appearance," noted in the foregoing description. We have known it to occur in a case where not a particle of mercury had been used. We have met it once in a very old man, over seventy years, who had taken no medicine of any kind. And we knew one instance, a girl ten years old, sick with typhoid fever, to whom five grains of calomel were given as a gentle apperient. It acted as it was expected, on the bowels. The next day her gum began to melt away, at the root of a decayed tooth, and the gangrene progressed in the usual manner. The action of her skin on both cheeks and on her forehead, was "glossy and waxy" before the calomel was administered, and we advised against its employment in the case, on that account.

We approve the practice of Dr. Coates, as also that of Dr. Parish; but earnestly recommend the use of the vapor bath as a most important auxiliary in every case of this sort; which should be applied morning and evening.

CHAPTER XLVII.

CONCLUDING REMARKS.

We have selected the foregoing diseases, and given our method of treating them; believing that they will afford all necessary instruction to intelligent families and individuals, how to anticipate and prevent most instances of threatened danger from sickness; and how to manage cases which they may have permitted to occur, through inattention to premonitory symptoms, or which may have been unavoidable. By a careful attention to the letters, which we have introduced for the purpose of emboldening our readers in the use of the bath, they will receive much practical information, all of which is trustworthy. Excepting three or four persons, we were personally acquainted with the writers, and were well enough informed respecting the moral character and standing of them all, to feel justified in indorsing their statements, without exception. On making the trial, each repetition will afford additional information and encouragement to persevere, as there may be occasion. As to the profession, if physicians shall candidly and confidently pursue the practice submitted, in the cases presented in the practical part of our work, they will be prepared, without further instructions from us, to extend the application of our principles with incessant improvement, throughout the whole range of medicine and surgery.

If the young physician will take McIntosh or any other standard work, on the Theory and Practice of Medicine, as his vade vecum, and associate the use of the vapor bath,

agreeably to our instructions respecting it, he will soon learn the truth of the above statement. And we have no doubt that the time will come, when the community will require that course.

If our publications respecting the efficacy of the vapor bath, shall be confirmed by a sufficient number of trials, we can come to no other conclusion but this one, that the doctrines which we inculcate on the subject of fever, are true and trust worthy; that the capillaries of the external surface are greatly concerned in its production; and when disease shall have occurred, a concurrence of their agency, is indispensable in effecting its cure.

APPENDIX.

HYDROPATHY, OR WATER CURE.

Hydropathy, or water cure, by many may be considered directly in opposition to the views which we inculcate. We have therefore thought it necessary, to submit the following remarks on the subject.

We have laid it down as a practical rule, that in an attempt to correct congestion, the system must be brought into the condition of direct debility; that is, the arterial action, must be reduced in power, to a degree lower than is natural in the case under treatment. This, when necessary, we secure by letting blood, or by the vapor bath, or both. In the water cure Mr. Priessnitz has succeeded in accomplishing it, in some sort, by the external and internal application of cold water. But it is a slow and uncomfortable mode of procedure. To effect cures in his way, it requires sometimes two, oftener four, five, or six months; and in some instances, a year or a year and a half, or two years. Whereas if the capillaries were aided by an appropriate application of dry heat, the same cures might be performed in one-fourth part of the time. The arterial action being kept in a subdued state, the veins and lymphatics gain an ascendancy and take up and retire the misplaced blood—the effect of congestion, as well as the material deposited by a morbid application

of the function of nutrition. He is not apprised of the fact, that such a thorough and long continued reduction of the temperature of his patients, is the cause of so great delay in accomplishing his cures. He has learned by observation and experience, that wrapping in wet sheets and repeating the cold bath, followed by a packing up in wet and dry clothes, will produce a profuse sweat; and that the sweat is often dark colored, emitting uncommon odors. It was quite natural for him, therefore, to conclude, that he washes and sweats out the morbific matter, which constitutes the various diseases under his treatment; especially, since the doctors who have visited his establishment, have given their sanction to this opinion.

We are satisfied with the evidences of Mr. Priessnitz's strength of intellect and of the accuracy of his discernment. These, have enabled him to associate his douche, his plunging bath, his half bath, his sheet bath, his sitting bath, his head bath, his foot bath, and his packing up for the sweat, each with the peculiar symptoms for which he has found it appropriate: and this adjustment is the only imitation of science, which we have been able to detect in the whole matter. He goes the round of this little circle, over and over, and patiently, with confidence awaits the issue. His patients, which are always select, are trained to the course, and with like confidence tamely endure their amphibious condition, and submit, till nature, aided by washing, by dilution and starvation, institutes for herself, her own method of cure. It seems to be a curiously bewitching species of empiricism, which is destined, nevertheless, to introduce a beneficial improvement into the department of medical science.

An atony or faltering of the capillaries of the skin, is the first link of the chain of events which occur, in the establishment of fever. In chronic disease, this debility marked by paleness, that is, by a deficiency in the circulation, becomes habitual, in a degree corresponding to the deficiency

of the superficial circulation; the capillaries of the skin having become disabled, present an interruption to the general circle. The arterial structures in course become injected to unnatural fullness, and irritations and congestions are set up, giving rise to the many forms of disease, which afflict mankind. It will be perceived, therefore, that we charge all the irritations and organic mischiefs to the account of the heart and arteries, whilst the origin of the whole is a disability in the skin to perform its functions. The skin, thus nearly destitute of the circulation, becomes constricted and impervious, forming a tightly fitted bandage, which makes unnatural pressure on the cellular structures subjacent to it, and increase the tendency to irritation to an indefinite degree.

In attempting to correct such a state of things, it would seem obvious, that a restoration of the capillaries to their natural state, ought to be the first intention of the physician.

This Mr. Priessnitz slowly accomplishes, without knowing the philosophy of it, by extensive and almost incessant friction. The water may serve in some degree to soften the capillaries and favor their expansion. But the low temperature which he prefers considerably counteracts the effect of his rubbing and wiping operations. Nevertheless, for the restoration of the languid structures of the surface, very much may be done by stern friction.

In the year 1809, we attended a case of rheumatism. The disease had fastened on the gentleman's knees, which were greatly enlarged, exceedingly painful and incorrigibly stiff; insomuch, that he could not walk one step. We were aided by one of the ablest physicians of Lynchburg, Virginia. Our united efforts were unavailing, although we used the most promising agents, external and internal. The patient became tired of our attentions, and asked permission to send fifty miles for a black man, who had acquired reputation in treating old rheumatic affections. By request we remained in attendance to witness his operations. It was quite amu-

sing to see how politely the black doctor entered the sick room, with two large corn cobs, in a bowl of salt and water. He commenced his operation, plying his cobs, with a severity rough enough for the treatment of a horse. The patient was alarmed and would willingly have given up all as lost. But we urged him to persevere. He did so, and in two weeks he was able to walk. He was cured by severe friction with two corn-cobs. Since that time, we have greatly relied on that kind of practice. To the reiterated friction, more than to the cold water, the patients of Mr. Priessnitz are indebted for the relief he affords them.

The occurrence of the circumstances which they so much delight in, and which they call the crises, satisfies us of the deficiency of the whole plan, and proves, that his cases suffer from the want of well-timed depletion. When by the resuscitation of the capillaries, the absorbents begin fairly to take up the misplaced material that constitutes congestion or hypertrophy when it exists, the particles so taken up, are commingled with the blood, and the blood-vessels are irritated by it. A feverish disposition is by that circumstance kept up; and the old irritations are removed, whilst the system remains in a state corresponding to what it would be, in a slow fever; and the ultimate convalescence is ushered in by abscesses, boils, &c. in both cases.

The employment of the vapor bath, would revive the capillaries much more speedily and with incomparably less discomfort, than cold water. In a case of long standing, the capillaries are constricted almost to a state of solidity; the skin feels hard and inelastic, and is pale through the deficiency of the circulation. Heat expands the vessels, renders the blood more fluid, and excites the whole structure to action. Besides, the blood itself is endowed with a degree of vitality, and distinctly evinces an appetence to a warm temperature. This is proved by the following experiment:

In performing the common operation of blood-letting, use

a white bowl. Let the stream of blood fall against the opposite side of the bowl. Then moving it a little briskly, from right to left, cause the blood to spread as it runs down the side of the vessel, so as to make a red track about two inches wide. Continue this little manipulation, till the side of the bowl, that is the blood's track, shall have become warm; then hold the bowl still, and let the blood run down about the middle of the track; and on a nice inspection it will be seen by any one, that the red particles will run from both sides of the red track to the stream of warm blood—horizontally, obliquely, upwards and downwards, chasing the warm current, as the operator shall choose to ehange the stream from side to side. Moreover, the red particles rise from the blood in the bowl to the distance of half an inch, and in curved lines run up and meet the descending stream, showing satisfactorily, their appetence to a warm temperature.

We have effected many cures of rheumatisms and other obstinate chronic diseases, by the use of our vapor bath and friction, aided by appropriate depletion, in much less time; subjecting our patients to much less inconvenience than appears to be necessary, in performing any water cure, the history of which has come to our knowledge. Time will determine the comparative merit of heat and cold; will ascertain the diseases which are most successfully treated, by each of the two; and eventually the world will enjoy the benefit of both. It will be known in what cases one should be used exclusively; in what others, the two might be associated; and again in what others, they may be used alternately, to the best advantage. We have witnessed the most satisfactory benefit, from the alternate use of the two agents, in a most obstinate case of neuralgia, which befell the author's wife, in the year 1822. After having several paroxysms of intermittent fever, a pain abruptly fastened on her right arm, extending from the shoulder to the extremities of the fingers; and for days was incessant. Ammonia was applied, so as to

blister the whole length of the arm; a plaster of ointment of cantharides, was afterwards used. Whilst yet tender from the blister, it was wrapped in a plaster of tar. Every kind of poultice and lotion, which her many good friends daily recommended, were all used without benefit. They were applied whilst nearly hot enough to scald, and again quite cold; but without effect. Meanwhile, opium, hyosciamus, &c., and every other hopeful internal remedy, were also used. The obstinate pain bade defiance to them all. After suffering an entire month or more, recourse was had to dry heat, applied by the use of a shovel of red hot coals. It acted like a charm, and continued to be quite comfortably effectual, during an entire week; when very suddenly, heat became horribly offensive. Cold water was then poured on the arm; continuing the application for some hours at a time, which in its turn, acted as kindly as heat had done whilst it was appropriate. After some days the cold water also failed. Heat was then again employed, as comfortably as at first, but failed again in like manner; when the cold water was again effectual. And thus by the use of heat and cold, alternately employed, in the course of five or six weeks the patient was permanently relieved. We must not omit to state, however, that all the while, whether in the employment of heat, or of cold water, general friction was diligently applied with stiff brushes, four times in every twenty-four hours; continuing the brushing at least half an hour at every repetition.

A SYNOPTICAL TABLE

OF

MATERIA MEDICA,

Therapeutically arranged, by S. K. Jennings, M. D., *Professor of Materia Medica, Therapeutics, &c. in the Washington College of Baltimore, for the use of his class,* 1838-9.

CLASS I.

Medicines which act upon the alimentary canal.

Order 1st—Emetics. Medicines which evacuate the stomach by exciting vomiting.

" 2d—Cathartics. Medicines which expel the fœces by increasing the peristaltic motion of the intestines.

" 3d—Anthelmintics. Medicines which destroy worms, or expel them from the body.

" 4th—Antacids. Medicines which counteract acidity in the stomach.

" 5th—Demulcents. Medicines which lubricate and protect the coats of the alimentary canal.

" 6th—Antidotes. Medicines which neutralize poisons when received into the stomach.

ORDER 1—EMETICS.	POSOLOGICAL.
Ipecacuanha radix, *ipecacuanha root,*	gr. i. v. to xx.
Sanguinaria canadensis, *blood root,*	gr. ii. iii. to x.
Phytolacca decandra, *poke root, (syrup,)*	dr. ss. to ii.
Spiræa trifoliata, *Indian physic,*	gr. v. x. xx. to xxx.
Lobelia inflata, *Indian tobacco,*	gr. v. x. xx. to xxx.
Euphorbia ipecacuanha, *American ipecacuanha,*	gr. v. x. xx.
Scilla maritima, *squill,*	gr. i. iii. vi. xii.
Sinapis alba, *white mustard,*	gr. xx. to dr. ii.
Anthemis nobilis, *chamomile,*	gr. xx. to dr. ii.
Antimonium tartarizatum, *emetic tartar,*	gr. 1-12, ⅛, 1-6, ¼, ½, i. to x.
Sulphas cupri, *sulphate of copper,*	gr. v. to xv.
Sulphas zinci, *sulphate of zinc,*	gr. x. to xxx.
Hydrargyri sulphas flavus, *turpeth mineral,*	gr. ii. to v.
Antimonii sulphuretum precip, *precip. sulph. of antimony,*	gr. v. to xx.

A SYNOPTICAL TABLE OF MATERIA MEDICA—CONTINUED.

ORDER 2—CATHARTICS.	POSOLOGICAL.
Elaterium, *wild cucumber*,	gr. ⅛ to ii.
Oleum tiglii, *croton oil*,	m. i. to ii.
Gambogia, *gamboge*,	gr. ii. to vi.
Colocynthidis pulpa, *bitter cucumber*,	gr. v. to x.
Scammonia, *scammony*,	gr. v. to x.
Radix jalapa, *jalap root*,	gr. x. to xxx.
Podophyllum peltatum, *May apple*,	gr. x. to xx.
Aloe socotrina, *aloes*,	gr. iii. to xx.
Radix rhei, *rhubarb root*,	gr. xx. to xl.
Folia sennæ, *senna leaves*,	dr. ss. to i.
Juglans cathartica, *butternut, (extract,)*	gr. xx. to xxx.
Cassia Marilandica, *American senna*,	dr. ss. to i.
Hydrargyri submurias, *calomel*,	gr. iii. to xxx.
Heleborus niger, *black helebore*,	gr. v. to xx.
Oleum ricini, *castor oil*,	dr. i. to viii.
Oleum oliva, *olive oil*,	dr. i. to viii.
Sulphas sodæ, *Glauber's salts*,	dr. ss. to oz. iss.
Sulphas potassæ, *sulphate of potassa*,	dr. ss. to vi.
Tartras potassæ, *soluble tartar*,	dr. i. to viii.
Magnesia, *magnesia*,	dr. ss. to ii.
Sulphas magnesia, *epsom salts*,	dr. ss. to oz. iss.
Sulphur sublimatum, *sublimed sulphur*,	dr. i. to iii.
Manna,	dr. i. to ii.
Prunus domestica, *prunes*,	aperient diet.
ORDER 3—ANTHELMINTICS.	
Spigelia Marilandica, *pink root*,	gr. x. to lx.
Allium sativum, *garlic*,	dr. ss. to i.
Melia azedarach, *pride of China*,	decoct. water oz. ii. azedarach oz. iv. } dose f. ss. oz.
Chenopodium Anthelminticum, *worm seed, (decoc.*	gr. xx. to lx.
Dolichos pruriens, *cowage*, (see Wood & Bache,)	cochl. min. i. to iii.
Artemisa satonica, *Tartarian southernwood*,	gr. x. to xl.
Polypodium filix mas, *male fern*,	dr. i. to iii.
Punica granatum, *pomegranate*,	gr. xx. to xxx.
Assafœtida,	gr. v. to xx.
Nicotiana tabacum, *tobacco*,	apply to the abdomen.
Helleborus fœtidus, *bears foot*,	gr. v. to xx.
Jalapa, *jalap*,	gr. x. to xx.
Scammonia, *scammony*,	gr. v. to x.
Oleum tiglii, *croton oil*,	m. i. to ii.
Oleum terebinthinæ, *oil of turpentine*,	f. dr. i. to oz. ss.
Ferrum, *iron*,	gr. v. to xxx.
Hydrargyrum, *mercury*,	gr. v. to xx.
Stannum, *tin (filings,)*	gr. x. to oz. i.
Sulphur,	dr. ss. to ii.
ORDER 4—ANTACIDS.	
Ammoniæ subcarbonas, *carbonote of ammonia*,	gr. v. to xx.
Liquor ammoniæ subcarbonatis, *solution of subcarb. ammo.*,	m. xx. to dr. i.
Spiritus ammoniæ, *ammoniated alcohol*,	f. dr. ss. to dr. i.
Cornu ustum, *burnt hartshorn*,	gr. xx. to xxv.
Testæ præparatæ, *prepared oyster shells*,	gr. x. to dr. ii.

A SYNOPTICAL TABLE OF MATERIA MEDICA—CONTINUED.

ORDER 4—ANTACIDS—(CONTINUED.)	POSOLOGICAL.
Potassæ subcarbonas, *subcarbonate of potassa*,	gr. x. to dr. ss.
Potassæ carbonas, *carbonate of potassa*,	gr. x. to dr. ss.
Liq. potassæ subcarbonatis, *sol. of carb. potassa*,	m. x. to dr. i.
Liq. potassæ, *solution of potassa*,	m. vii. to dr. ss.
Creta præparata, *prepared chalk*,	gr. x. to xl.
Liquor calcis, *lime water*,	f. oz. i. to vi.
Magnesia,	gr. x. to xxx.
Magnesia subcarbonas, *carbonate of magnesia*,	gr. xx to oz. i.
Sodæ subcarbonas, *carbonate of soda*,	gr. xx. to oz. ss.
Sodæ subcarbonas exsiccata, *dried carb. soda*,	gr. iii. to vi.
Sodæ carbonas, *carbonate of soda*,	gr. x. to oz. ss.
Sodæ snpercarbonas,	dr. ss. to i.
ORDER 5—DEMULCENTS.	
Glycyrrhiza glabra, *liquorice*,	The articles in Order 5 may be used in the form of Emulsions, Ptisans, Solutions, &c.
Ulmus fulva, *slippery elm bark*.	
Acaciæ gum. *gum Arabic*.	
Tragacantha, *tragacanth*,	
Lini usitatissimi semina, *flax seed*.	
Cydoniæ semina, *quince seeds*.	
Cetaceum, *spermaceti*.	
Cera, *wax*.	
Althæ officinalis, *marshmallow*.	
Amygdala, *almonds*.	
Amylum, *starch*.	
Avena sativa, *the oat*.	
Hordeum, *barley*.	
Lichen islandicus, *Iceland moss*.	
Malva sylvestris, *mallows*.	
Uva passa, *raisins*.	
Caricæ fructus, *figs*.	
Tussilago farfara, *coltsfoot*.	
Oleum olivæ, *olive oil*.	
ORDER 6—ANTIDOTES.	
Albumen.	
Gallæ, *galls*.	
Saccharum, *sugar*.	
Acida, *acids*.	
Omnes medicinæ, i. e. all the articles of the 4th order.	

CLASS II.

Medicines which act upon the glandular system, and upon the secretory and excretory vessels.

ORDER 1st—SECRETORY STIMULANTS. Medicines which act upon the whole glandular system.

" 2d—SIALAGOGUES. Medicines which increase the secretion of saliva.

" 3d—EXPECTORANTS. Medicines which promote the secretion of mucus or pus from the bronchial tubes.

A SYNOPTICAL TABLE OF MATERIA MEDICA—CONTINUED.

ORDER 4th—ERRHINES. Medicines which promote the secretion of mucus in the nostrils.

" 5th—DIAPHORETICS. Medicines which excite cutaneous exhalation.

" 6th—DIURETICS. Medicines which increase the secretion of urine by exciting the action of the kidneys.

" 7th—EMENAGOGUES. Medicines which promote the secretion of menstrual discharge.

ORDER 1—SECRETORY STIMULANTS.	POSOLOGICAL.
Iodina, *iodine*,	gr. ss. to iii.
Hydrargyrum, *mercury*,	gr. ¼, ⅓, ½, to i.
ORDER 2—SIALAGOGUES.	
Daphne mezereum, *mezereon*,	gr. i. to x.
Anthemis pyrethrum, *pellitary root*,	to be chewed.
Nicotiana tabacum, *tobacco*,	
Mastiche, mastich,	gr. x. to xxx.
Pillulæ hydrargyri, *blue bill*,	gr. ii. to v.
Unguentum hydrargyri, *mercurial ointment*,	apply by friction.
Hydrargyri oxymurias, *corrosive sublimate*,	gr. 1-16 to ⅛.
Hydrargyri submurias, *calomel*,	gr. ½ to i.
Hydrargyri nitrico oxydum, *red precipitate*,	apply externally.
Hydrargyrum præcipitatum album, *white precip.*	do. do.
Hydrargyrum sulphuretum rubrum, *cinnabar*,	gr. x. to xxx.
Hydrargyrum sulphuretum nigrum, *Ethiop's mineral*,	gr. v. to xxx.
ORDER 3—EXPECTORANTS.	
Asclepias tuberosa,	gr. xx. to dr. i.
Cetaceum, *spermaceti*,	gr. xv. to dr. iss.
Polygala senega, *seneka*,	gr. x. to dr. ss.
Scilla maratima, *squill*,	gr. iii. to x.
Allium sativum, *garlic*,	dr. ss. to ii.
Arum triphyllum, *wake rebin, (Indian turnip,)*	gr. xii. to dr. i.
Ammoniacum, *ammoniac*,	gr. x. to xx.
Assafœetida,	gr. v. to xx.
Camphora, *camphor*,	gr. ii. to x.
Cabonas potassæ et soda, *carbonate of potassa and soda*,	gr. x. to xxx.
Balsamum tolutanum,	gr. x. to xxx.
Balsamum peruvianum, *baloam of peru*,	gr. x. to xxx.
Glycyrrhiza glabra, *liquorice root*,	decoction.
Ipecacuanha,	gr. ½ to ii.
Lichen Islandicus, *Iceland moss*,	gr. xx. to dr. i.
Pix liquida, *tar*,	dr. ss. to i.
Oleum olivæ, *olive oil*,	dr. i. often repeated.
Antimonium, *antimony*,	gr. 1-12 to 1-10.
Mel, *honey*,	dr. i. repeated.
Omnia medicamenta Class 1, Ord. 5. All the Demulcents.	

A SYNOPTICAL TABLE OF MATERIA MEDICA—CONTINUED.

	POSOLOGICAL.
ORDER 4—ERRHINES.	
Helenum Autumnale, *sneeze weed, (pulv'd,)*	
Nicotiana tabacum, *tobacco, (snuff,)*	
Asarum Europæum, *asarabacca leaves.*	
Helenium, *elecampane.*	
Veratrum Album, *white hellebore.*	
Hydrargyri sulphas flavus, *turpeth mineral.*	
ORDER 5—DIAPHORETICS.	
Dover's powder,	gr. v. to xv.
Antimonium tartarizatum, *emetic tartar,*	gr. ⅛ to ½.
Ipecacuanha,	gr. ½ to ii.
Nitras potassæ, *salt pitre or nitre,*	gr. v. to x.
Spiritus mindereri, *acetate of ammonia,*	f. oz. ss. to iss.
Eupatorium perfoliatum, *thoroughwort, (infus.)*	f. dr. i. oz. iss. to to 1 quart.
Asclepias tuberosa, *butterfly weed,* oz. to quart,	tea cup full every two hours.
Guaicum officinale, *guaicum wood and resin,*	gr. x. to xxx.
Daphne mezereum, *mezereon, (decoc.)*	½ gill four times daily.
Sarsaparilla,	dr. ss. to i.
Laurus sassafras, *sassafras, (tea or)*	gr. xx. to dr. i.
Xanthoxylum fraxineum, *prickley ash, (decoc.)*	gr. xx.to dr. i. or 2 pints pr day
Saponaria officinalis, *soapwort, (decoct.)*	oc. ii. in 24 hours.
Sulphur,	gr. xx. to dr. ii.
Colchicum autumnale, *meadow saffron,*	gr. i. to v.
Tincture do.	dr. ss. to i. to ii.
ORDER 6—DIURETICS.	
Digitalis purpurea, *fox glove,*	gr. ss. to iii.
Scilla maratima, *squill,*	gr. i. to iii.
Colchicum autumnale, *meadow saffron,*	gr. i. to v.
Cantharis vesicatoria, *Spanish flies,*	gr. i. to ii.
Copaifera officinalis, *copaiba,*	m. xv. to xxx.
Piper cubeba, *cubebs,*	dr. ss. to iss.
Apium petroselinum, *parsly root, (infus.)*	
Daucus carota, *garden carrot, (wild carrot seeds,)*	
Solanum dulcamara, *bitter sweet, (decoct.)*	f. oz. ii. 4 times daily.
Juniperus communis, *juniper,*	dr. i. to ii.
Smilax sarsaparilla, *sarsaparilla,*	gr. xx. to dr. i.
Leontodon taraxacum, *dandeleon, (decoct.)*	f. oz. i. to iss.
Oleum terebinthinæ, *oil of turpentine,*	m. x. to dr. ss. to i.
Ulmus fulva, *slippery elm bark,*	gr. xx. to dr. i.
Pix liquida, *tar,*	dr. ss. to i.
Acidum aceticum, *acetic acid,*	f. dr. ss. to ii.
Acidum malicum, *malic acid,*	f. dr. i. to ii.
Acidum nitricum dilutum, *dilute nitric acid,*	m. x. to xl.
Spiritus ætheris nitrici, *sweet spirits of nitre,*	f. dr. ss. to i.
Acetas potassæ, *acetate of potassa,*	gr. xx. to dr. i.
Nitras potassæ, *nitre or saltpetre,*	gr. v. to xx.
Super-tartras potasa,	gr. xx. to dr. ii.
Sodæ subcarbonas, *subcarbonate of soda,*	gr. x. to dr. ss.
Soda bicarbonas, *bicarbonate of soda,*	gr. xx. to dr. i.
Sapo medicinalis, *medicinal soap,*	gr. v. to xx.
ORDER 7—EMENAGOGUES.	
Hydro Piper, *(infusion,)*	dr. i. to ii. per diem.
Helleborus niger, *black hellebore,*	gr. x. to xx.

A SYNOPTICAL TABLE OF MATERIA MEDICA—CONTINUED.

ORDER 7—EMENEGOGUES, (CONTINUED.)	POSOLOGICAL.
Juniperus sabina, *savine*,	gr. xv. to xx.
Mentha pulegium, *European pennyroyal, (infu.)*	ad lib.
Rubia tinctorium, *madder*,	gr. x. to dr. ss.
Rosmarinus officinalis, *rosemary*,	make a tea.
Polygala senega, *senega*,	gr. x. to dr. ss.
Cantharis vesicatoria, *Spanish flies*,	gr. ss. to i.
Aloes extractum, *extract of aloes*,	gr. v. to xv.
Assafœtida,	gr. v. to xx.
Ruta graveolens, *rue*,	gr. xx to xl.
Myrrha, *myrrh*,	gr. x. to xx.
Galbanum,	gr. v. to xv.
Sagapenum,	gr. x. to xx.

CLASS III.

Medicines which act upon the heart and arteries.

ORDER 1st—SEDATINES. Medicines which diminish the power and velocity of the circulation, by their operation on the heart and large arteries.

" 2d—REFRIGERANTS. Medicines which diminish the heat of the body, by their action on the extreme vessels.

" 3d—TONICS. Medicines which invigorate the circulation and thus relieve debility or atony.

" 4th—ARTERIAL STIMULANTS. Medicines which excite the circulation.

ORDER 1—SEDATIVES.	
Laurus camphora, *camphor laurel*,	gr. ii. to x.
Colchicum autumnale, *meadow saffron*,	gr. i. to v.
Conium maculatum, *hemlock*,	gr. iii. to v.
Acidum hydrocianicum, *Prussic acid, (dilute,)*.	m. i. to v. cautiously.
Antimonium tatarizatum, *emetic tartar*,	gr. 1-16 to 1-12
Veratrum album, *white hellebore*,	gr. i. to ii.
Humulus lupulus, *hops*,	gr. vi. to xii. to dr. ss.
Digitalis purpurea, *foxglove*,	gr. i. to iii.
Plumbi acetas, *acetate of lead*,	gr. ss. to ii. to iii.
Potassæ nitras, *nitre or saltpetre*,	gr. v. to xx.
ORDER 2—REFRIGERANTS.	
Aqua frigida, *cold water*,	
Acidum aceticum, *acetic acid.*	
Acidum citricum, *cetric acid.*	
Acidum tartaricum, *tartaric acid.*	
Potassæ sales, *salts of potassa.*	
E plumbo preparata, *preparations of lead.*	
E zinco preparata, *preparation of zinc.*	

A SYNOPTICAL TABLE OF MATERIA MEDICA—CONTINUED.

ORDER 3—TONICS.	POSOLOGICAL.
Cinchona,	gr. viii. to xx. to dr. i.
Aristolochia serpentaria, *Virginia snakeroot*,	gr. x. to xxx.
Prunus Virginiana, *wild cherry bark*,	dr. ss. to i.
Cornus Florida, *dog-wood*,	gr. xx. to dr. i.
Chironia angularis, *American centaury*,	dr. ss. to i.
Liriodendron tulipifera, *tulip tree bark*,	dr. ss. to i.
Bonplandia trifoliata, *angustura bark*,	gr. x. to xxx.
Cocculus palmatus, *columba*,	gr. x. to xxx.
Gentiana lutea, *gentian*,	gr. x. to dr. i.
Quassia excelsa, *quassia*,	gr. xx. to dr. i.
Quassia simaruba, *simaruba*,	gr. xx. to dr. i.
Croton Eleutheria, *cascarilla*,	gr. x. to xxx.
Anthemis nobillis, *chamomile*,	dr. ss. to i.
Humulus lupus, *hops*,	fr. vi. to xii.
Aurantii cortex, *orange peel*,	dr. ss. to i.
Acorus calamus, *sweet flag*,	gr. xx. to dr. i.
Artemisia absinthium, *wormseed*,	gr. xx. to xl.
Krameria, *rhatany*,	gr. xx. to dr. i.
Nux vomica,	gr. ⅛ to i. to iii.
Marrubium vulgare, *horehound*,	gr. xx. to dr. i.
Menyanthes trifoliata, *buck bean*,	gr. xx. to dr. i.
Myrrha, *myrrh*,	gr. x. to xx.
Salix alba, *white willow*,	gr. ii. to viii.
Bismuthi subnitras, *white oxide of bixmuth*,	gr. v. to x.
Nitras argenti, *nitrate of silver*,	gr. ss. to ii.
Oxydum zinci, *oxide of zinc*,	gr. i. to v.
Ferrum, *iron*, (different preparations of.)	
Cuprum, *copper*.	
ORDER 4—ARTERIAL STIMULANTS.	
Cantharis vesicatoria, *Spanish flies*,	gr. ss. to i.
Oleum terebinthinæ, *oil of turpentine*,	dr. ss. to ii.
Phosphorus.	
Alcohol.	
Capsicum annuum, *cayenne pepper*,	gr. v. to x.
Caryophillus aromaticus, *cloves*,	gr. v. to xx.
Zinziber, *ginger*,	gr. x. to xx.
Pimpinella anisum, *anise*,	gr. xv. to dr. i.
Acorus calamus, *sweet flag*,	gr. xx. to dr. i.
Cochlearia armoracia, *horse raddish*,	dr. i. to ii.
Balsamum peruvianum, *balsam of peru*,	gr. x. to dr. ss.
Carui semina, *caraway seed*,	gr. xx. to dr. i.
Resina flava, *resin*,	
Balsamum tolutanum, *balsam of toulou*,	gr. x. to dr. ss.
Oleum cajuputi, *cajuput oil*,	m. v. to m. x.
Canella alba, *canella*,	gr. x. to dr. ss.
Cardamomum, *cardamon*,	gr. v. to xx.
Laruus cinnamomum, *cinamon, (bark,)*	gr. v. to xx.
Oopaiba, *balsam of copaiva*,	m. xx. to lx.
Coriandrum sativum, *coriander*,	gr. xx. to dr. i.
Piper cubeba, *cubebs*,	dr. i. to iii.
Cuminum, *cumin (seed,)*	gr. xx. to dr. i.
Anethum fœniculum, *fennel seed*,	gr. xx. to dr. ss.

A SYNOPTICAL TABLE OF MATERIA MEDICA—CONTINUED.

ORDER 4—ARTERIAL STIULANTS, (CONEIN'D,)	POSOLOGICAL.
Giacum. *gum*,	gr. x. to dr. ss.
Lavandula, *lavender*, *(oil of,)*	m. i. to m. v.
Mastiche, *mastich*,	gr. x. to dr. ss.
Mentha piperita, *peppermint*, *(infus.)*	ad libitum.
Mezereum, *mezereon*,	gr. i. to x.
Myristica, *nutmeg*,	gr. v. to xx.
Olibanum,	gr. x. to xx.
Pimenta, *pimento*,	gr. v. to xx.
Pix liquida, *tar*,	dr. ss. to i.
Anthemis pyrethrum, *pellitary root*,	to be chewed.
Sabinus, *savine*,	gr. v. to xv.
Serpentaria, *Virginia snake root*,	gr. x. to dr. ss.
Styrax officinate, *storax*,	gr. x. to xv.
Sinapis, *mustard*,	dr. iv.
Æther sulphuricus, *sulphuric ether*,	dr. ss. i. to ii.
Vinum, *wine*,	dr. i. to oz. ii.
Aqua chlorinii, *chlorine water*,	dr. i. to ii.
Calcx chlorinata.	
Soda chlorinata.	
Ferrum, *iron*.	
Petroleum.	
Naptha,	mr. xxx. to lx.
Piper longum, *long pepper*,	gr. v. to xx.
Piper nigrum, *black pepper*,	gr. v. to xx.

CLASS IV.

Medicines which act on the brain and nervous system.

ORDER 1st—NARCOTICS. Medicines operating on the brain and nerves, diminishing sensibility and inducing sleep.

" 2d—ANTISPASMODICS. Medicines operating on the nervous system and allaying inordinate muscular action.

" 3d—NERVOUS STIMULANTS. Medicines which excite the brain and nervous system, and thereby increase their irritability and energy.

ORDER 1—NARCOTICS.	
Opium,	gr. i. ii. to vi.
Lactuca sativa, *lettuce*,	ab. lib.
Camphora, *camphor*,	gr. ii. to xx.
Humulus lupulus, *hops*, (in the form of extract,)	gr. x. to scr. ii.
Hyoscyamus, *henbane*,	gr. i to ii.
Conium maculatum, *hemlock*,	gr. iii. to v.
Atropa belladona, *deadly night shade*,	gr. ½ to v.
Datura stramonium, *thorn apple*,	gr. ii. to iii.
Anonitum, *anonite*,	gr. i. to v.
Solanum Dulcamara, *bitter sweet*,	dr. ss. to i.
Digitalis purpurea, *fox glove*,	gr. i. to iii.

A SYNOPTICAL TABLE OF MATERIA MEDICA—CONTINUED.

ORDER 1—NARCOTICS, (CONTINUED.)	POSOLOGICAL.
Nicotiana tabacum, *tobacco*,	
Strychnos, Nux vomica, (rasped,)	gr. i. to iii.
Acidum Hydrocyanicum, *prussic acid*, (diluted,)	m. i. to iv.
Laurus nobilis, *bay tree*.	
Morphia,	gr. $\frac{1}{6}$, $\frac{1}{3}$, to $\frac{3}{4}$.
Narcotin.	
ORDER 2—ANTISPASMODICS.	
Assafœetida,	gr. x. to xv.
Castoreum, *castor*,	gr. x. to xx.
Galbanum,	gr. v. to xv.
Gum ammoniacum, *gum ammoniac*,	gr. x. to xx.
Moschos moschiferus, *musk*,	gr. ii. to xx.
Valeriana officinalis, *valerian*,	gr. xx. to dr. i.
Draconitum, *skunk cabbage*,	gr. x. to xx.
Æther sulphuricus, *sulphuric ether*,	dr. ss. to ii.
Oleum succini, *oil of amber*,	m. v. to xv.
Belladona, *deadly night shade*,	gr. ss. to v.
Camphora, *camphor*,	gr. ii. to xx.
Hyoscyamus, *henbane*,	gr. iii. to x.
Sagapenum	gr. x. to xx.
Opium,	gr. ss. to iii.
Datura Stramonium, *thorn apple*,	gr. ii to iii.
Conium maculatum, *hemlock*,	gr. ii. to x.
Ipecacuanha radix, *ipecacuanha root*,	
Cuprum ammoniatum, *ammoniated copper*,	gr. ss. to iii.
Nitras argenti, *nitrate of silver*,	gr. ss. to iv. to vi.
Zinci oxydum, *oxyde of zinc*,	gr. i. to v.
Zinci sulphas.	gr. i. to iii.
ORDER 5—NERVOUS STIMULANTS.	
Ammonia,	gr. x. to dr. ss.
Allium porrum, *leek (juice,)*	dr. ss. to i.
Allium sativum, *garlic*,	dr. ss. to ii.
Strychnia Nux Vomica, (rasped,)	gr. i. to v.
Opopanax,	gr. x. to xxx.
Secale cornutum, *spurred rye, ergot*,	gr. xv. to xx.
Anethum graveolens, *dill*,	gr. xv. to dr. i.
Assafœtida,	gr. x. to xx.
Galbanum,	gr. v. to xv.
Valeriana officinalis, *valerian*,	gr. xx. to dr. i.
Rhus toxicodendron, *poison oak*,	gr. ii. to iv.
Æther sulphuricus, *sulphuric ether*,	dr. ss. to ii.
Sagapenum,	gr. x. to xx.

CLASS V.

Medicines which act on the muscular fibres.

ORDER 1st—ASTRINGENTS. Medicines which, by inducing contraction of the muscular fibre, restrain inordinate evacuations and hæmorrhage.

A SYNOPTICAL TABLE OF MATERIA MEDICA—CONTINUED.

ORDER 4—ASTRINGENTS.	POSOLOGICAL.
Querius et Gallæ, *oak bark and galls,*	gr. x. to xx.
Geranium malculatum, *crane's bill,*	dr. i. to iss.
Hæmatoxylon Campeachianum, *logwoood, (deco.*	oz. ii. to iii.
Kino,	gr. x. to dr. i.
Catechu,	gr. x. to xx.
Krameria triandra, *rhatany, (decoc.)*	oz. i. to ii.
Rosa Gallica, *red roses,*	
Salix alba, *white willow,*	gr. x. to xx.
Tormentilla erecta, *tormentil,*	gr. xx to dr. ss.
Uva ursi,	gr. x. to dr. ss.
Alumen, *alum,*	gr. v. to xx.
Acidum sulphuricum, *sulphuric acid. (diluted,).*	m. x. to xl.
Acctas plumbi, *acetate of lead,*	gr. ss. to iii.
Sulphas zinci, *sulphate of zinc,*	gr. i. to iii.

CLASS VI.

Medicines which act upon the skin and external parts, by application to the surface of the body.

ORDER 1st—EPISPASTICS. Medicines which excite external irritation.

" 2d—EMOLLIENTS. Medicines which allay external irritations by softening the skin.

NOTE.—All medicines externally applied (except those which belong to Class vi.) may be considered as stimulant, tonic, sedative, &c. and are therefore arranged in their respective orders.

ORDER 1—EPISPASTICS.

Nitras argenti, *nitrate of silver.*
Catharis vesicatoria, *Spanish flies.*
Ammonia.
Granville's lotion.
Allium sativum, *garlic,*
Euphorbia ipecacuanha, *American ipecacuanha,*
Elemi.
Potassa fusa.
Acida, *acids.*
Pix Burgundica, *burgundy pitch.*
Sabina, *savine.*
Sinapis, *mustard.*
Antimonium, *antimony,* with lard, dr. i. to oz. i.
Iodina, *iodine.*
Potassa cum calce, *potassa with lime.*

ORDER 2—EMOLLIENTS.

Cetaceum, *spermaceti,*
Oleum olivæ, *olive oil,*
Sevum, *suet.*
Aqua calida.
Adeps, *lard.*

A SYNOPTICAL TABLE OF MATERIA MEDICA—CONTINUED.

TINCTURES.	POSOLOGICAL.
Tinctura aloes,	dr. i. to ii.
" alois compositæ,	dr. i. to ii.
" assafœtidæ,	dr. i. to ii.
" aurantii, *orange peel*,	dr. i. to ii.
" camphoræ compositæ,	dr. i. to ii.
" cantharidis, *Spanish flies*,	m. x. to dr. i.
" capsici, *red pepper*,	m. x. to dr. i.
" castorei,	dr. i. to ii.
" digitalis, *fox glove*,	m. x. to dr. ss.
" ferri ammoniati,	dr. ss. to ii.
" ferri muriatis,	m. v. to dr. ss.
" guaiaci ammoniatæ,	dr. ss. to ii.
" humuli, *hops*,	dr. ss. to ii.
" iodini,	m. x. m. xl.
" kino,	dr. i. to ii.
" rhei compositæ,	dr. i. to oz. ss.
" valerianæ,	dr. i. to ii.
" lobeliæ, *Indian tobacco*,	dr. i. to ii.
" camphoræ,	m. v. to dr. i.
" seminum colchici, *seeds of mead. saffron*	m. x. to lx.
" stramonii, *thorn apple*,	m. x. to xx.
" sanguinariæ, *blood root*,	m. xxx. to lx.
SYRUPS.	
Syrupus scillæ, *squill*,	dr. i. to iss.
" phytolaccæ decandræ, *poke root*,	dr. i. to ii.
" aurantiorum, *orange peel*,	
" papaveris, *poppies*,	dr. ss. to oz. i.
" rosearum, *roses*,	dr. ii. to oz. ii.
" rosearum gallicarum, *red roses*,	
" limonis, *lemon*,	dr. i. to ii.

DESCENT, PROCIDENTIA, RETROVERSION,

AND

PROLAPSUS UTERI.

The vagina, or canal that leads to the uterus, is so constructed, that its posterior portion, which lies in contact with the rectum, and which may be considered its lower surface, if measured from the commissure upwards and around forward to the upper side of the neck, is about three inches longer than its anterior portion, or upper surface, which lies in contact with the bladder. Its upper surface is attached to the bladder, by peritonæal, and to the urethra by cellular connections; and its lower surface is attached to the rectum, also by cellular connection, till it reaches to the reflection of the peritonæum.

The uterus is so situated as to have the bladder before, and the rectum behind it, with both of which it is connected by a reflection of the peritonæum. Its shape resembles that of a pear, but flattened, more particularly so on its anterior side.

Its small extremity, or neck, is not a continuation of the same line with the vagina. It is projected into the anterior side of that canal, in the greater number of subjects, about an inch nearer to the os externum, than the angle or upper extremity of the sac which terminates the canal. Hence the

reflection of the posterior portion of the vagina, as it turns from the rectum upwards and forwards to meet the anterior portion, and form a junction round the neck, produces a cul-de-sac at the upper extremity, above and behind the os uturi.

Writers have divided the uterus into three parts: the fundus, the body, and the neck. The fundus includes all that part of the organ, which is above a line passing across the origin of the fallopian tubes.

The body includes the portion below that line, down to the commencement of the neck.

The neck is the portion which dips into the vegina, and terminates in the os tincæ.

The peritonæum passing downwards from the inner side of the abdomen, covers the fundus of the bladder and descending till it meets the body of the uterus, turns upwards and covers its anterior side, making a pocket between the bladder and uterus; then passing over and making a covering for the fundus, it descends, covering the body till it reaches the rectum, &c. making another and a deeper pocket behind the uterus, between it and the rectum. In forming these pockets, the peritonæum makes two folds on each side of the uterus, which being extended laterally, connects them to the sides of the pelvis, constituting the broad ligaments, each of which has an anterior and a posterior portion. The anterior portion includes the fallopian tubes, the posterior, the ovaria.

The round ligaments originate, one on each of the sides of the uterus, and passing along in the doublings of the broad ligaments, rise to the brim of the pelvis, and turn over it, through the abdominal rings.

The broad and round ligaments aid in supporting the uterus in its proper position, but the vagina, sustained as it is, by its connections with the rectum and bladder, is its main support.

The fundus with the broad and round ligaments, together with the two pockets above described, constitute the floor on

which the lower intestines rest; and in course are liable to be pressed downwards by lifting heavy weights or by the pressure made by the muscles of the abdomen when the bowels are in a state of constipation.

If the uterus should sink from its natural position in the brim, into the cavity of the pelvis, which change is termed a descent, it must put its ligaments on the stretch, and drag the rectum and bladder, more or less inconveniently, according to the degree of descent.

If the descent take a direction, so that the uterus shall slide down into the vagina, we have the second stage of displacement, a tendency towards a prolapsus, which is called a procidentia. In this condition of things, we have a greater distension of the ligaments, as well as an increased tendency of the vagina, rectum and bladder, to descend with the uterus, until at length it may protrude beyond the vulva, which constitutes the third stage, and which is strictly a prolapsus uteri.

Those of the sex who have large pelves; those who are of relaxed habit; those who have borne many children; and those advanced in years, are more liable than others to the inconvenience under consideration. But it is not confined to these alone, it may befal the aged matron or the youthful virgin. Doctor William Campbell of Edinburg, encountered complete protrusion in a female of twenty-one, who had labored under it for more than two years previously; and Capuron relates an instance of prolapsus in a girl of fourteen. Doctor Dewees met with a number of instances of the same kind, which befel unmarried females; and the writer of this essay has been consulted by fifteen, or perhaps twenty, in the course of his practice.

In the first stage, the stretching of the ligaments, and dragging of the connections which fasten the uterus to the rectum and bladder, produce pain in the loins, which in consequence of the sympathies of the connecting structures, often

extend along the sacrum and coccyx, sometimes accompanied by a knawing or dragging sensation in the groins, and an inability to continue for any length of time in the erect posture. All these inconveniences are often considered by the patient to be the effect of debility or rheumatism. Some cases however, are less liable to such misapprehension, being attended by an increase of menstrual secretion, or by a leuchorrhœal discharge, more or less profuse.

Any additional inconveniences which may occur as the case progresses into the condition which is termed the second stage—such as difficulty in discharging fæces and urine, or even entire disability until the uterus is elevated by the finger—tenesmus; disuria; an increase of leuchorrhoeal discharge; are all referrible to the altered situation of the womb —the dragging which it exerts on the organs to which it is connected, and the lateral pressure which its descent must inevitably make on the circumambient structures. A summary of the symptoms may be acceptable.

An unusual weight in the pelvis, and a dragging sensation in the iliac regions, which are aggravated by the erect posture; a bearing down resembling tenesmus; pain in the back, accompanied by a peculiar appearance in the patient's walk, as if her lower extremities were exceedingly weak; a benumbing sensation shooting down the thighs, especially when she first rises on her feet, or when she attempts to recline—sometimes she will support herself in a leaning posture, resting her hands on her knees; a discharge of a material of a muco-purulent appearance from the vegina, which is sometimes tinged with blood, and in some instances gives out an offensive odor—the menstrual discharge is in some instancess too abundant, and recurs too frequently; in others during the interval of the menses, there is a constant leuchorrhœa.

When these symptoms shall become established, on examination, the uterus will be felt nearer the external part

than usual, or its neck will be projected slightly from the vagina. From this time, every function which requires much action of the diaphragm or other abdominal muscles, will serve progressively to advance the uterus towards the os externum, until a considerable portion or the whole of it be at last pushed extra vulvam, which constitutes the third stage.

Clear and satisfactory as this description of the disease may seem to be, an examination per vaginam and per rectum ought always to be insisted on before giving a prescription. This done, and the true state of things having been ascertained, the condition of the system in regard of general health, is to be considered and treated according to existing circumstances. As far as practicable, the true pathology of the case should be known. Inflammatory action should be subdued by means of depletion, general or topical, or both, as there may be occasion, and by the use of the bath. Irritation should be soothed and retired, and any visceral disease should be treated with a proper regard to the organ affected. But as the management shall have respect to the prolapsed uterus, the principal intention should be to replace, and then by means of a suitable instrument, to sustain it, in situ, until the relaxations shall be corrected and the natural tone of the ligaments, vagina, rectum, bladder and their peritonæal connections, shall be recovered.

In treating a case of procidentia, much may be done by posture. Sir Charles Mansfield Clark says, the patient should be as much as possible upon a bed, or upon a sofa; but considers a mattress better than either. Strong action of the abdominal muscles must be guarded against, and the diet of the patient should be sufficiently nutritious, but the stomach and bowels should never be loaded. The bladder should not be suffered to contain a large quantity of urine, and all articles of food or drink known to produce flatulency ought to be avoided.

A pessary of proper shape and dimensions affords the most

effectual support for the uterus, when that sort of aid is required. The flat concave circular instrument, recommended by Dr. Dewees, has afforded comfort in many instances, and sometimes permanent relief. If, however, it is large enough to prevent its escape, it must produce too much lateral or circumferential distension. It makes a bed on which the uterus may recline, but it is too much below its natural position to relieve the ligaments, and afford them good opportunity to recover their natural tone and retract to their proper length: besides the lateral or circumferential expansion which the instrument will produce, must hinder the vagina from recovering its longitudinal distension, without which complete recovery must be impracticable.

The spherical or globular pessary is better, inasmuch as it must produce more longitudinal distension of the vagina, of course, more elevation of the uterus; relieving the tension of the ligaments and lessening the dragging of the rectum and bladder. The utility of a pessary of this description was known to Hippocrates, who employed a pomegranate of suitable dimension, first steeping it in wine.

Dr. Charles M. Clark says, "a good pessary should combine firmness, lightness and closeness of texture: firmness, that it may not yield to pressure; lightness, that it may not incommode by weight; and closeness of texture, that it may not imbibe the secretions of the vagina."

"Pessaries are made of various shapes as well as of different materials, adapted to different cases and circumstances. For a majority of cases a circular or oval pessary answers sufficiently well; but the circular pessary can be used in those cases only, where the disease has not made great progress, and where the tone of the vagina is not much impaired; if the vagina has been much dilated, no pessary of small size can be sustained in it; and one of a larger size, of a circular form, might do mischief by compressing the

urethra and rectum, and so preventing the discharge of the fæces and urine."

The inconveniences and injuries which have been produced by the various kinds of pessaries have been such, that their usefulness is held to be doubtful by some physicians of great pretensions; indeed, the remedy has been considered as altogether injurious. An instrument of proper construction, it is hoped, will rectify all these evils.

If we duly consider the anatomy of the organ to be supported by a pessary, we cannot fail to perceive, that the instrument, if it shall have good pretension to a philosophical adaptation, ought to fill the cavity of the vagina without inconvenient distension, either lateral or longitudinal. It should reach about four inches above the os externum, and should have a neck, by which the entire weight of the organ and instrument, may be made to rest upon a bandage or cushion fitted for that purpose. Its upper extremity should occupy the cul-de-sac, lifting it above the neck, and present a suitable cavity on its anterior side, into which it shall receive the neck of the womb. This last named adjustment, will secure to the uterus the necessary elevation, and to the fundus of the organ an inclination in conformity to its natural angle with the vagina; and the neck when received into the cavity will subserve to keep the instrument in its proper position.

On the anterior side of the instrument there should be a sulcus or groove of sufficient capacity to protect the urethra. This groove will also enable the patient at any time, very conveniently, with the end of the fore finger, to ascertain whether the instrument retains its intended position; and it will make a channel for the exit of the secretions.

To the small end, there should be attached a neck or stem, about an inch and a half in length, having at its lower extremity, two circular buttons, seven-eighths of an inch in diameter, and one-fourth of an inch apart, for the purpose of

receiving and holding the bandage which is intended to sustain its weight.

Preparatory to the successful employment of this pessary, it should be ascertained, that the vagina is in a condition for admitting the longitudinal distension necessary for its reception; which will not be the case, if the uterus and its ligaments are bound down too low, by unnatural adhesions, or contractions.

When the womb is in its natural position, its fundus inclines a little forwards and its neck a little backwards. But when it begins to sink down towards the perinæum, its inclination is often retroverted, so that it is made to bear hard on the rectum, and the irritation produced by the misplacement, sooner or later sets up a sub-acute inflammatory condition of the parts involved, which is followed by adhesions more or less extensive or obstinate, corresponding to the degree of previous irritation and the time of its continuance.

When such adhesions of the peritonæal coverings of the uterus and ligaments, with those of the rectum and circumjacent parts have become established, the contractions present to the finger when examined per rectum, the resemblances of tumors of various figure and dimensions. In cases of this kind the entire attachments must be broken up, and the uterus with its ligaments made to swing freely forwards to their natural position. Sometimes the contractions are found to be greater in the posterior surface and its connections with the rectum. In some instances the broad ligaments are dragged down and adhere to the posterior and lateral peritonæal surfaces upon which they ought merely to slide. And in others, the anterior surface between the os externum and the neck is greatly contracted. All these points should be considered, and if either or all of them be found to exist, suitable manipulation must be applied and repeated as there may be occasion, till the correction shall be complete. Without this important preparation of the parts, all attempts

to maintain the uterus in situ, will be unavailing; and in such instances, it requires a good deal of tact, to separate the adhesions and elevate the organ properly. One of the leading objects in preparing this essay is, to embolden the profession in performing an operation which may prove to be of vast importance to thousands. Many cases will be found, in which, although the state of things may seem forbidding, yet by firm and patient perseverance, the morbid condition may be overcome, and perfect and permanent relief be afforded.

About twenty-five years ago, we visited a patient in great distress. Her symptoms were such as commonly attend prolapsus uteri, but her greatest inconvenience, was an almost total inability to discharge her fæces or urine. On examination per vaginam and per rectum, we found the uterus lying with its fundus nearly at one extremity of the long diameter of the pelvis, and the neck at the other; a lateral displacement; the uterus enlarged to a triple size, and so rigidly bound down to the circumambient structures, as not to admit of the least elevation without great force. Our first impression was, that the case was incorrigible, and we were about to abandon it. Considering, however, that the enlargement of the organ and its adhesions might be the effect of displacement, merely;—an inflammatory tumefaction; which was confirmed by the fact, that it was very sore to the touch, we concluded that an attempt to elevate it might be safely conducted, if not done too hastily, and if any new irritation which might be produced by the attempt, should be met with decision and careful treatment. With this conclusion, we proceeded at once to use our customary manipulations, per rectum, being very careful always to apply the finger laterally, and not point foremost. Beginning with a moderate degree of pressure, and gradually increasing the force, on the right, on the left, and on the middle of the tumid uterus, as we could effect more room or find access for the finger; all

the while attending carefully to the complaints of our patient. This first attempt satisfied us that the adhesions might be made to yield, and also, that too much must not be attempted at one sitting. So soon, therefore, as the patient earnestly desired respite, the operation was discontinued for that time. A gentle aperient of castor oil was administered, and repeated the following morning. In the course of thirty-six hours there was an occurrence of fever with tense pulse. She was bled sixteen ounces from the arm, which was succeeded that night by a dose of calomel, ten grains, with opium, two grains. The following day she was kept quiet in bed, and mild aperient and cooling remedies were used. On the fourth day, another and somewhat bolder attempt at elevation was made. This in like manner excited some irritation, making further depletion necessary. One moderate blood-letting and a gentle cathartic once or twice repeated, again tranquilized the system; after which, we continued to operate about twice a week. After ten or twelve sittings we succeeded in releasing the uterus from its unnatural attachments, and replaced it, in situ. By continued attention; a few times leeching the os tincæ; frequent blood-letting from the arm; frequent small doses of calomel and ipecac., and when necessary, hyosciamus, or opium, or both, in order to allay existing irritation, and secure rest at night; after eighteen months or two years, this patient was cured.

In this case and in all others that we have treated, the pessary was not introduced, until a liberation and elevation of the uterus, and a retirement of existing irritation, had been accomplished.

We have given this, the most difficult and forbidding in its appearance, of all the cases that have fallen under our observation which admitted of cure, and feel great solicitude that it may meet a kind and candid reception; because a

majority of the cases which we have treated for uterine affections, have been such as labored under a descent and retroversion of the organ. Prolapsus uteri appears to have been sufficiently well understood and defined by our writers on that subject. But the obstinate case here submitted, was not a prolapsus. The neck of the uterus had not slid down into the vagina. The uterus had descended, and its ligaments and connections with the vagina, rectum, and bladder, having become relaxed, it continued its descent, dragging after it the circumambient structures, till it had assumed a lateral displacement.

After having met this case, we became more circumspect in our investigations, and have learned, that there are many instances, such as a physician on an ordinary and hasty examination per vaginam might consider to be well enough, and which on a more careful investigation made per vaginam and per rectum, he will find to be retroversion and adhesion, requiring the most careful and skillful attention and management. This state of things may be present and an examination per vaginam give very little inconvenience to the patient; when at the same time, a slight degree of pressure made upon the uterus with the finger per rectum, will give great pain. It is a fact, however, that in such instances, when the operation necessary for correction shall have been repeated, at each subsequent repetition, the patient will make less complaint, and at length, as the morbid attachments are broken up, she will experience but little inconvenience when the womb is elevated.

The many trials which we have made of the flat circular pessary, of the oval and of the spherical pessaries, and the repeated disappointments which we met in the use of them, impelled us to try a three and a half inch tubular one, made of gum elastic, which answered better. But it would become too soft by the warmth and moisture of the vagina. Afterwards we had them made of wood, which answered

better, as it respected the necessary firmness; but there was a good deal of difficulty in retaining any of them in their proper position. This last mentioned inconvenience led to the conclusion, that the instrument should make considerable longitudinal distension, and to produce its full effect, must occupy the cul-de-sac, and by means of a suitable cavity on the anterior side, receive the neck, which with little trouble and attention would not fail to answer the intended purpose. In this shape we have so far proved its efficacy, that we are obliged to believe it will correct any condition of prolapsus, if it be properly used—we mean, if the medical treatment required in the case be judicious, and the instrument be rightly fitted, as to its length and size, including its cavity. Indeed, we entertain a hope, that it will supercede the necessity of a recourse to the surgical operation of Messrs. Marshall Hall, Heming and Ireland,—meritorious as it is said to be, in the hands of those distinguished gentlemen.

The introduction of a pessary requires care. Having smeared the body and stem of the pessary with some unctuous substance, it should be passed in upon its side, and its upper end slid against the rectum with its stem inclined towards the pubis, until it shall be resisted by the cul-de-sac. Then turning it on its back, it cannot fail to receive the neck of the womb into its cavity. The patient should previously be furnished with a broad laced bandage to fit her lips with greater or less tightness, to suit her feelings. A convenient strap, with a button-hole or two in the middle, suited to the stem of the pessary, is then to be buttoned on it, and the end of the strap attached by a button or buckle to the bandage behind, drawing the stem backwards, so as to make pressure on the perinæum. This last measure makes the neck and back part of the instrument act on the perinæum and rectum, which serve as a fulcrum; and the upper end as a lever, causes the uterus to swing forward to its place. The anterior end of the strap should be drawn up by another buckle

fastened to the waistband, above the pubis, with sufficient tightness to sustain the weight of the uterus.

The attention of the patient should be called to all these particulars, and she should be instructed in them all, and have privilege to regulate them at discretion; save only that she should be very careful that the instrument be introduced to its full length, every time it is applied, and always made to bear more or less against the perinæum. She should also be made to understand, particularly, that if the instrument be not admitted to its full length, it had better be laid aside till the arrival of her physician; since the impracticability of its admission affords evidence, that the uterus is retroverted and needs the introduction of the finger per rectum, to throw it forward to its place; or that some adhesion is remaining or has recurred, which needs to be broken up.

Sometimes the uterus is in such a condition, that when the pessary is apparently in place, there is an escapement of the os tincæ out of the cavity prepared to hold it, consequent on enlargement of that portion of the organ. When this circumstance occurs, it produces much inconvenience, which requires correction.

If the patient complain of pain or soreness after the introduction of the pessary, the inconvenience here referred to should be suspected, and an examination should be made to ascertain the true position of the instrument, and if the os tincæ be dislodged it should be replaced.

In withdrawing the instrument, a rotary motion should be given it, so as to dislodge the neck of the uterus from the cavity, which, without this precaution, might produce pain and subsequent soreness.

TOXYCOLOGY.

REMEDIES IN CASES OF POISONING AND OF ACCIDENTS,

By Professor ORFILA, of Paris, recommended by the French Institute in their Report, to be ordered by government, that a copy should be kept for immediate reference in all the public offices, as well as in every private house in the kingdom; with numerous additions to the original, of the newest discoveries, and importont corrections from Andral, Apjohn, Beck, Sir C. Bell, Christison, Cooper, Dumas, Edwards, Fodere, S. K. J. and others.

GENERAL SYMPTOMS OF POISONING.

A person is supposed to be poisoned, if being in perfect health he be attacked, after having taken some food or drink, with violent pain, cramp in the stomach, nausea, vomiting, convulsive actions, and a sense of suffocation; or if he be seized, under the same circumstances, with giddiness, delirium, or unusual drowsiness. *Beck.*

The effects of poisoning may, in most cases, be known and distinguished from natural diseases or sudden illness, by the following symptoms:

1. The person, when in a state of perfect health, becomes all at once very ill, sick, with violent pain in the stomach, burning in the throat, and retching.

In sudden apoplexy, the stomach and throat are not affect-

ed. In cholera and internal inflammations, there is no burning in the throat before vomiting begins.—*Apjohn.* There is also a feverishness not observed at first, in poisoning.—*Fodere.*

2. The effects of a strong dose of poison usually show themselves in a few minutes, though others not for some hours. After a meal or eating, when a person is taken very ill, poisoning may be suspected.—*Christison.*

Apoplexy, cholera, and inflammation, which also appear suddenly after eating, may be distinguished as above.

3. The effects of poisoning not only appear suddenly, but increase rapidly and alarmingly, after or within an hour, and sometimes prove fatal in a few minutes.

Internal inflammation, diseases of the heart, cholera, plague, apoplexy and some other diseases, that often end fatally within a few hours, may be distinguished from poisoning, by what is said above, as well as from individual circumstances.

4. The effects of poisoning most usually increase without intermission of their severity, and are also, for the most part, uniform in kind.

Internal inflammations, and some of the diseases already mentioned, have often the same character, and can only be distinguished by circumstances.—*Christison.*

WHAT TO DO IN GENERAL.

When it is strongly suspected from the above symptoms, that poison has got into the stomach, though it be not known what sort of poison, not a moment is to be lost in removing it, by means of the stomach pump, if one be at hand, and if not, by promoting full and copious vomiting. For this purpose, the most speedy means are, the tickling of the back part of the mouth with a feather, and repeatedly thrusting the finger as far back into the throat as possible. When the gullet is much inflamed, however,

none of these means can be employed. Other means to be used, are given below.

Irritant, Caustic, or Corrosive Poisons.

This division comprehends strong or concentrated acids and alkalies, metallic preparations of antimony, arsenic, bismuth, copper, lead, mercury, tin and zinc, phosphorus, cantharides or blistering fly, and acrid plants.

General Effects.—All the poisons of this division, produce inflammation of the parts which they touch, in different degrees; sometimes, as in the case of acquafortis, hartshorn or bluestone, they burn as violently as a red hot iron would do, causing death in the same way as burning by fire; sometimes, as in the case of arsenic and corrosive sublimate, without burning the parts so intensely, they get into the blood, and prove rapidly fatal, by destroying the vitality of the heart, of the lungs, and of the brain.

POISONING BY STRONG CONCENTRATED ACIDS.

COMMON NAME.	CHEMICAL NAMES.
Spirit of Salt—Muriatic Acid.	Hydrochloric Acid.
Aquafortis.	Nitric Acid.
Oil of Vitriol—Spirits of Vitriol.	Sulphuric Acid.
Acid of Phosphorus.	Phosphoric Acid.

General Effects.—Instantly after swallowing a strong acid, a very disagreeable, sour, burning taste is felt in the mouth; belching acrid gas; an acrid heat in the gullet and stomach; a very sharp pain, and feeling of tightness in the throat; great difficulty or impossibility of swallowing; the breath becomes insupportably fœtid; retching and copious vomiting ensue of bitter stuff, sometimes mixed with blood; there are hiccough and sometimes costiveness, but oftener copious stools, more or less bloody; colic and tenderness of the belly, so as to render even a shirt too heavy to be borne; oppressed breathing; burning thirst, increased by drinking, all drink being soon vomited; cold, clammy sweats; repeated and vain efforts to make water; distressidg restlessness; convulsive

movements of the lips, face and limbs; the countenance is pale, ar lead colored; while the mind for the most part remains unaffected till death, which occurs in two hours to half-a-day, and sometimes from three to seven, or even fifteen days.—*Christison.*

Mistakes of cholera for irritant poisoning may be prevented by knowing, that in cholora there is no blood vomited, and no heat and pain of the throat until *after* vomiting has begun. In violent colic there are no vomiting and purging. In inflammation of the intestines, there is always fever, which does not *at first* occur in poisoning.—*Fodere.*

WHAT TO DO IN POISONING BY STRONG ACIDS.

Antidotes, or Counter Poisons.—The best counter poison is magnesia, (but not calcined magnesia—*Aikin,*) which should be given without losing a moment, or the patient will be lost, by mixing an ounce in a pint of water, and giving a glassfull of this every two minutes. When magnesia is not at hand, dissolve half an ounce of soap in a pint of water. When neither magnesia or soap are to be had, beat down the plaster of a room, and make it into a thin paste with water, (*Christison,*) and let it be instantly swallowed, in order to neutralize the poison. Enemas or clysters of the same should also be given.

Other Treatment.—The stomach pump cannot always be used, from the inflamed state of the gullet; and hence it is much better to promote vomiting than waste time with it. This must not be done by tickling the throat with a feather, or the finger, but by giving water, milk and water, whey, barley water, gum arabic water, or linseed tea. The inflammation of the gullet and stomach must be also immediately relieved by putting from twelve to thirty leeches on the parts where there is most pain, fomenting the stomach with water in which chamomile and poppy heads have been boiled. A warm bath will also be advisable. (Use the vapor bath—*S. K. J.*) No food, not even the weakest broth or tea, must

be taken, till the inflammation is subdued; but when the cramps or convulsions disappear, a little gruel, or veal, or chicken broth may be given; and no solid food for some time·

POISONING BY OXALIC ACID, OR ACID OF SUGAR.

This acid, used chiefly for cleaning brass, or boot tops, and removing ink spots, was not known to be poisonous till 1814, since when numerous fatal cases have occurred by mistaking it for Epsom salts, which it resembles so closely in appearance, that the salts ought always to be tried before taking them, by putting a crystal in a penful of ink, which will not be changed by the salts, but will become reddish brown with oxalic acid.

Effects when swallowed.—If abut half an ounce, or even less, of oxalic acid be taken into the stomach, it very rapidly produces effects like burning or scalding in the mouth or gullet, the tongue and gums swelling, and smart violent burning pains arising in the throat and stomach. This is usually (not always) followed by excessive vomiting of a dark colored, or sometimes bloody matter, which continues till near death; sometimes (not always) there is violent purging. The skin becomes cold and clammy, the pulse at the wrist can scarcely be felt, and torpidity and drowsiness—great sinking and weakness, with change of the countenance, announce death to be near.

Where the acid is taken in smaller quantity, or diluted with about twenty times its weight of water, it does not produce the violent burning pains, but attacks the heart, the brain, and the nerves, stopping the motions of the heart, producing apparent death, or suspended animation, by paralyzing the organs of breathing, while symptoms ensue resembling lockjaw, followed by death. In still smaller doses, it causes great weakness of the limbs, pains in the back and numbness, without proving fatal.—*Christison.*

WHAT TO DO.

Antidotes, or Counter Poisons.—Oxalic acid acts with such dreadful rapidity, that remedies must be given on the instant. The best are chalk, magnesia, (not calcined,) or the mortar or plaster taken from a wall, mixed thick in cold water, and swallowed copiously.—*Christison.* Any one of these combines with the acid, and forms an insoluble salt. Solution of soap, or soda, or potass, must not be given.

Other Treatment.—Carefully avoid giving water or drink to promote vomiting, for by diluting the acid, it is rendered easier to be carried into the blood.—*Christison.* After giving any of the counter poisons, the stomach pump may be used, or a smart emetic taken. When the immediate danger is over, if there be no pain in the gullet, the stomach, or the bowels, the patient may have some wine, or spirits and water, to rouse him, and have hot fomentations, or a mustard poultice, applied to the stomach.—*Beck.* Use our bath.—*S. K. J.*

POISONING BY STRONG OR CONCENTRATED FIXED ALKALIS.

COMMON NAMES.	CHEMICAL NAMES.
Caustic Potash.	Hydrate of Potass—Potassa Fusa.
Salt of Tartar, Oil of Tartar.	Carbonate of Potass—Subcarbonate of Potass.
Caustic Soda.	Oxide of Sodium.
Washing Soda—Kelp, or Barilla.	Carbonate of Soda—Subcarb. Soda.
Lime—Quicklime.	Oxide of Calcium.
Slaked Lime.	Hydrate of Lime.
Lime Water.	Solution of Lime.

Effects when swallowed.—The most remarkable difference from the effects of strong acid is, in the case of alkalies, a peculiar styptic, acrid, burning, and urinous taste in the mouth, produced by potass or soda, destroying the skin lining the mouth and gullet, and causing a burning pain, with tightness like strangling, and great difficulty or incapability of swallowing, with violent retching and vomiting, often mixed with blood, tasting urinous, and changing vegetable blue colors green. These first effects are followed by sharp

pains at the pit of the stomach, and great tenderness of the whole belly, from internal inflammation, and often actually burning through the stomach. In the third stage, there are excessive weakness, cold clammy sweats, hiccough, convulsive twitching of the limbs, and trembling, followed by torturing colic, and purging of dark or bloody matter. These symptoms precede death, which may take place in less than twenty-four hours.—*Christison.* The mind is usually more or less deranged.—*Beck.* Sometimes the first symptoms remit, and the patient continues to live for some weeks, or months, but is at length exhausted by purging and incapability of swallowing food.—*Dewar and Sir C. Bell.*

WHAT TO DO.

Counter Poison, or Antidoes.—Let no time be lost in giving vinegar, or lemon juice, in the quantity of two tablespoonfuls in a glass of water; and, if this be not at hand, a few drops of elixer of vitriol, [sulphuric acid,] or spirit of salt, [hydrochloric acid,] (*Apjohn,*) may be added to the water, so as to render it about as sour as weak vinegar. Oil, such as olive oil, or oil of almonds, given freely, is also good, by converting the potass, or soda, into soap, and promoting vomiting.—*Chereau.*

Other Treatment.—Besides these counter poisons, bland drinks, such as barley water, gruel, linseed tea, milk, whey, and jellies, may be given, to sheath the virulence of the poison. The internal inflammation must be subdued by twelve or more leeches applied to the pit of the stomach and to the throat, or by cupping or the lancet. The tender state of the gullet will often render it impossible to introduce the stomach pump, or to tickle the throat with a feather or the finger. Milk, warm water, or weak chamomile tea, are best for promoting vomiting; all strong emetics being improper. (After all the bath.—*S. K. J.*)

POISONING BY AMMONIA AND ITS SALTS.

COMMON NAMES.	CHEMICAL NAMES.
Volatile Alkali.	Solution of Ammonia—Liquor Ammoniæ.
Smelling Salts–Volatile Salts–Hartshorn.	Sesqui-Carbonate of Ammonia.
Sal Ammoniac—Baker's Salt—Muriate of Ammonia.	Hydrochlorate of Ammonia.

Effects when swallowed.—These are nearly the same as in the case of potass and soda, with the addition of a pungent, suffocating, burning sensation, caused by the vapor or gas of the ammonia. This poison also, much more rapidly, brings on dreadful convulsions and cramps, resembling those of lock-jaw.—*Apjohn.* When taken in smaller quantity, it causes bleeding from the mouth, the nose, and the bowels; makes the teeth drop out, and brings on a fatal hectic.—*Huxham.*

Effects when the Vapor is breathed.—When smelling salts are incautiously held long to the nostrils of persons who have fainted, the vapor inflames the throat and lungs, and produces burning pain in the mouth and throat, great difficulty of swallowing, oppressed breathing, and distressing cough.—*Nysten.* The bottle of smelling salts should only be applied from time to time; three parts of water may be added to weaken its virulence.—*Apjohn.*

WHAT TO DO.

Counter Poison, or Antidotes.—As in the case of potass and soda, vinegar is the best counter poison of ammonia—(*Beck*)—and when that is not at hand, lemon juice, or any vegetable acid; but unless very speedily taken, the vinegar will be of no use; for death has occurred in four minutes from this poison. When the vapor has been breathed in injurious quantity, the vapor of hot vinegar may be inhaled by the mouth and nostrils.

POISONING BY IODINE AND ITS SALTS.

Effects when swallowed.—In the quantity of from ten to twenty grains, it produces metallic taste in the mouth; a

sense of tightness and strangling in the throat, nausea, severe pain at the pit of the stomach, increasing on being pressed; retching, vomiting, colic, palpitation, trembling, blood-shot and throbbing eyes, with sinking of the pulse.—*Jahn.*

WHAT TO DO.

Counter Poisons, or Antidotes.—Dissolve a quantity of white (not blue) starch, arrow root, or wheat flour, in water, and give it immediately, as a probable antidote.—*Apjohn.*

Other treatment.—When the pain of the stomach is distressing, apply leeches and fomentations; and give for drink, barley water; or what is better, rice water, if it can be had; alternating the bath.—*S. K. J.*

POISONING BY MERCURY.

COMMON NAMES.	CHEMICAL NAMES.
Corrosive Sublimate—Muriate of Mercury—Oxy-muriate of Mercury	Bichloride of Mercury
Calomel	Chloride of Mercury
Red Precipitate	Nitric Oxide of Mercury
Vermillion, or Cinnabar	Bisulphuret of Mercury
Turbeth Mineral	Sub-Sulphate of Mercury
Prussiate of Mercury	Percyanide of Mercury

Effects of swallowing Mercury.—When one grain, or more, of corrosive sublimate, or over doses of the other mercurial preparations have been swallowed, the effects are more rapid and powerful than even those of arsenic, causing a most disgusting metallic taste, somewhat like that of rue, in the mouth; an acrid dryness in the throat, with a sense of tightness and strangling; pain in the back part of the mouth, the stomach, and the bowels, which soon becomes insupportably severe; nausea, belching of fœtid air; inclination to vomit, retching, and at length vomiting, and purging of bloody matter; hiccough, oppressed breathing, difficulty of swallowing, unquenchable thirst; difficulty of making water, cramp, clammy skin, icy coldness of the hands and feet; alarming weakness and sinking; change of the countenance, which is usually swelled or flushed; dreadful convulsions and delirium precede death, which takes place in from twen-

ty-four to thirty-six hours; or sometimes in three days or more, according to the quantity taken, and to the constitution of the patient.

Effects when applied externally.—When corrosive sublimate, or other strong mercurials, are applied to wounds or sores, or even to the unbroken skin, in the form of dangerous cosmetics, or to destroy vermin in the hair, similar effects, more or less violent, are produced as those just mentioned; particularly cramp, and inflammation of the stomach and bowels, intense head-ache, cold sweats, convulsions, and death in from ten to thirty hours.

WHAT TO DO.

Counter Poisons, or Antidotes.—As quickly as possible, mix up the whites of a dozen eggs or more, with two pints of cold water, and give a glassful of the liquid every two minutes, till the stomach can contain no more, in order to promote vomiting. When fewer eggs only are at hand, use all there are, and supply the deficiency with milk. The dried gluten of wheat, or even wheat flour itself, mixed with water, is also a good counter poison to corrosive sublimate.—*Taddei.*

Other treatment.—When no eggs, milk, wheat gluten, nor wheat flour are at hand, linseed tea, sugared water, barley water, or other bland drinks, should be copiously given; and vomiting should be provoked, if the gullet be not inflamed, by tickling the throat with a feather, or with the finger. If the stomach pump is at hand, it ought to be employed without delay. When inflammation of the stomach and bowels comes on, leeches, and fomentations of poppy water, must be applied. Also, the bath.—*S. K. J.*

POISONING BY ARSENIC.

COMMON NAMES.	CHEMICAL NAMES.
White Arsenic—Oxide of Arsenic——Fly Powder	Arsenious Acid
Macquer's Salt of Arsenic—Arseniate of Potash	Arsenite of Potass
Orpiment—King's Yellow—Rusma	Sesqui-Sulphuret of Arsenic
Realgar	Red Sulphuret of Arsenic

Fowler's Solution—Tasteless Ague Drop
Arsenical Paste—Plunket's Remedy for Cancer
Solution of Arsenite of Potass—Liquor Arsenicalis
Contain Arsenious Acid

Effects when swallowed, or introduced internally.—As these effects vary in different individuals, from difference of constititution, they are classed under three varieties.

1*st Variety.*—In about half an hour, or more, after the arsenic is introduced into the body, nausea and faintness come on, soon succeeded by burning pain in the stomach, and obstinate vomiting of yellowish green matter, much increased by any sort of drink; and after a time, more or less blood is generally brought up. Along with the vomiting, there are heat, dryness, and a tight strangling sensation in the throat, with unquenchable thirst; the voice becomes hoarse, and speaking painful; gripes, and purging of green, watery, viscid matter, usually (not always) sets in with much irritation, and vain straining at stool; the belly is tense and painful; the pulse quick, and the heart flutters; the skin is cold and clammy; palsy of the extremities, convulsions, and in some cases delirium, precede death, which occurs in from twenty-four hours to three days.—*Apjohn.*

2*d Variety.*—When solid lumps, or a very large dose of arsenic, has been introduced, death ensues with great rapidity in about six hours or less, with little or no irritation, but excessive faintness, stupor, and slight convulsions; sometimes there are trivial vomiting and pains of the stomach.—*Christison.*

3*d Variety.*—The patient sometimes lives six days, and in rare cases partially recovers; the effects being at first the same as in the first variety, the vomiting, &c. being, perhaps, more violent, followed about the second or fourth day by palsy, epilepsy, hysteric lock-jaw, and sometimes outrageous madness.—*Christison.*

Effects when externally applied.—When arsenic is applied to cancerous sores, as in the form of arsenical paste, or of

Plunket's or Aldis's remedies, or to destroy vermin, itch, and the like, it does not affect the stomach so much as the nerves, producing giddiness, fainting, trembling of the limbs, heartburn, excessive thirst, scalding on making water, slight vomiting, delirium, and death in from twenty-four to forty-eight hours.

WHAT TO DO.

Counter Poisons, or Antidotes.—No specific counter poison is yet discovered; though lime water may be tried, prepared by heating for five or six minutes, a quarter of an ounce of slaked quick-lime in two pints of water, straining the liquor through a linen cloth, and giving several successive glasses of this, mixed with equal parts of sugared water. Dr. Christison, however, says this is absolutely useless.

Other treatment.—The stomach pump, if one can be immediately had, is here most valuable (*Apjohn;*) and if not, exciting vomiting by tickling the throat with a feather or the finger. Vomiting must also be promoted by drinking copiously so as to fill the stomach with warm or cold milk, water, sugared water, linseed tea, or barley water. When vomiting cannot easily be excited, an emetic of 24 grains of the sulphate of zinc should be given.—*Christison.* Enemas of castor oil, and suppositories prepared with opium, are highly valuable.—*Ryan.*

Useless Remedies.—Treacle, oil, gall nuts, Peruvian bark, the bark of pine and pomegranates, liver of sulphur, or sulphuret of potassium and vinegar, formerly recommended, are not only useless, but often, as in the case of the liver of sulphur, even dangerous. The more recently vaunted remedies of magnesia and charcoal are, at best, of extremely doubtful utility.—*Christison.*

After Treatment.—Bleeding from the arm seems to be decidedly advantages, [followed by the bath.—*S. K. J.*] Blisters to the belly, with opiates, anodynes, mild laxatives, and bland (not stimulating) food, are most advisable.—*Christison.*

The hydrated sesqui-oxide of iron has been discovered to act as an antidote to arsenious acid. The best process to obtain it, consists in oxidizing, with the assistance of heat, a solution of protosulphate of iron, by adding to it nitric acid in small portions at a time. Precipitate the solution thus obtained by caustic ammonia, and wash the sesqui-oxide by agitating it with water several times; decant the supernatent liquid, and preserve the hydrate under water in close stoppered vessels.—*Bunsen and Burthold.*

The above substance is not recognized as an absolute antidote to arsenic. See Schultz in Hufeland's Journal, January, 1838.

POISONING BY COPPER.

COMMON NAMES.	CHEMICAL NAMES.
Verdigrise—Oxide of Copper.	Diacetate of Copper.
Verdigrise Chrystals.	Pure Diacetate of Copper.
Blue Stone—Blue Vitriol—Blue Copperas.	Sulphate of Copper.
Verditer—Copper Nitre.	Nitrate of Copper.

By using untinned copper vessels for cooking, or by preserving in these vessels articles of food, such as pickles, preserves, or milk, as well as copper stop-cocks, when any acid or grease is present, as is almost always the case, a poisonous salt is produced, which may cause deleterious consequences. —*Apjohn.* Cooking in very clean copper vessels at a high heat, and removing the material before cooling, is safe.—*Proust.*

Effects when swallowed.—When any of the above salts of copper are taken by accident or design, there are produced an acrid, styptic, disgusting, coppery taste in the mouth; with a dry parched tongue, a sense of strangling, tightness in the throat, coppery belchings, continual spitting; nausea, copious vomiting, or distressing and vain efforts to vomit; shooting, and often severe, pains in the stomach; dreadful griping; frequent purging, sometimes of black or bloody matter, with much vain straining at stool; the belly is painful to the touch, and swells up; there are great heat of the skin, and burning,

unquenchable thirst; succeeded by jaundice (never occurring from arsenic or mercury,) and by great weakness and faintness, difficulty of breathing, violent head-ache, giddiness, cold sweats, scanty urine, cramps of the legs, convulsions, and death.

Counter Poisons, or Antidotes.—The best antidote for neutralizing poisonous salts of copper in the stomach is, white of eggs, of which one dozen, if so many can be had, should be mixed with a pint or two of water, and taken in glassfuls every two minutes. The next best is Prussian blue, or percyanide of iron; or an ounce of fine, clean, iron filings may be taken in milk, or other bland fluid.—*Edwards and Dumas.*

Useless and Dangerous Antidotes.—Liver of sulphur, or sulphuret of potassium, alkalies, gall-nuts, bark, charcoal, particularly vinegar, formerly recommended, must not be given.

Other Treatment.---Sugar, though not as at first supposed, an antidote, will be of advantage, given in coffee, or water, to promote vomiting; and this may also be provoked, if it do not come on of itself, by tickling the throat with a feather or the finger. The stomach pump will only be available when employed early. When there is great pain of the belly, or at the pit of the stomach, leeches will be advisable. [Say bleeding, following it with the vapor bath.---*S. K. J.*]

POISONING BY ANTIMONY.

COMMON NAMES.	CHEMICAL NAMES.
Tartar Emetic---Tartarized Antimony---Antimoniated Tartar.	Totassio-Tartrate of Antimony.
Butyr, or Butter, of Antimony---Muriate of Antimony.	Chloride of Antimony.
Kermes Mineral.	Hydro-Sulphate of Antimony.
Glass of Antimony.	Oxide of Antimony.
James' Powder.	

Serious consequences often ensue by putting tartar emetic into tea, liquors and the like, for the purpose of detecting domestic pilferers, by making them ill, (*Christison;*) and by the ignorant use of James' Fever Powders.

Effects when swallowed.---The common effects produced are, a rough, metallic taste in the mouth, nausea, copious vomitings, frequent hiccough, severe heart-burn, burning heat, and pain at the pit of the stomach, griping colic, purging, fainting; the skin, in some cases, cold; in others, burning hot; difficult breathing, giddiness, like intoxication, loss of sense, convulsive motions, distressing cramps in the legs, and death. Sometimea there is great difficulty, or impossibility of swallowing, from the tightness and strangling sensation in the throat; sometimes, when there is no vomiting or purging, the other effects are more severe.---*Beck.*

Effects when externally applied.---In the form of ointment, as used by the late empiric, St. John Long, and scientifically recommended by the late Dr. Jenner, tartar emetic may cause not only painful tumors and bad ulcers, but nausea, vomiting, and even death.---*Francis in Beck.*

Counter Poison, or Antidotes.---The decoction or tincture of galls, when at hand, should be given to neutralize the poison. The yellow Peruvian bark, from containing gallic and tannic acid is, by some, recommended as the best antidote, and may be given in powder, in tincture, or in decoction, repeating the doses.---*Apjohn.*

As Antidotes---Ipecacuanha, blue vitriol, or sulphate of copper, white vitriol, or sulphate of zinc, should not be given to promote vomiting.

Other Treatment.---The vomiting, when it begins, must be promoted by several glasses of plain water, or sugared water; but when vomiting has continued some time, with increasing pains, one grain of extract of opium, or an ounce of syrup of poppies, dissolved in a glass of sweetened water, should be given thrice, at intervals of a quarter of an hour. If the symptoms continue to increase, a dozen leeches or more, should be applied over the pit of the stomach; and if there be much sensation of strangling in the throat, the name number of leeches may be applied there. [Bleed and apply the bath.---*S. K. J.*]

POISONING BY TIN.

COMMON NAME.	CHEMICAL NAMES.
Butter of Tin---Salt of Tin---Muriate of Tin.	Bichloride of Tin.
Putty Powder---Flowers of Tin---Worm Powder.	Oxide of Tin.

These preparations are used in dying, and the arts; and in one case the salt of tin was mistaken and used by a cook for common salt. Metalic tin is not poisonous.

Effects when swallowed.—There are produced, by small doses, colic and purging; and by larger doses, when given to brute animals, palsy, convulsions, and death.

Counter Poisons, or Antidotes.—The best counter poison for tin, is milk, but till this is procured, warm or cold water should be given to promote vomiting.

Other treatment.—The colic may be relieved by leeches and fomentations, the convulsions, by opium, or syrup of poppies, as recommended for antimony. [According to the severity of the symptoms, bleed and use the bath.–*S. K. J.*]

POISONING BY ZINC.

COMMON NAMES.	CHEMICAL NAMES.
White Vitriol---White Copperas---Vitriol of Zinc.	Sulphate of Zinc.
Flowers of Zinc---Nihil Album.	Oxide of Zinc.

Vessels made of zinc should not be used for milk, nor in the kitchen, it is also dangerous to use zinc for water pipes, as it readily oxidizes.—*Proust.*

Effects when swallowed.—When taken in larger doses than a drachm, the salts of zinc are apt to produce dangerous vomitng. The usual effects are, an astringent, metallic taste in the mouth, a sense of strangling, tightness in the throat, nausea, copious vomiting and purging, pains at the pit of the stomach, extending over the belly, difficulty of breathing, paleness of the face, cold and clammy skin; but seldom death. —*Beck.*

WHAT TO DO.

Give copious draughts of milk, or milk-warm water, to render the vomiting easy. The pain in the stomach, and tightness in the throat, may be relieved by leeches and fomentations—[better by bleeding and bathing.—*S. K. J.*]

POISONING BY SILVER.

COMMON NAMES.	CHEMICAL NAMES.
Lunar Caustic---Lapis Infernalis.	Nitrate of Silver.
Fulminating Silver.	Ammoniuret of Silver.

Effects when swallowed.—In doses of more than three grains, nitrate of silver will burn the internal parts it touches, and produce an ulcer and mortification, with excruciating pain.—*Boerhave.* Six grains have been taken with benefit. *S. K. J.*

WHAT TO DO.

Counter Poisons, or Antidotes.—A table spoonful of common salt, or chloride of sodium, dissolved in two pints of water, or sea water, if at hand, drank copiously, will decompose the poison, and produce the harmless chloride of silver, or horn silver. For fulminating silver, charcoal powder diffused in water, and drank, is said to be the best antidote.—*Pagot Laforet.*

Other Treatment.—If the vomiting and pain continue distressing, recourse must be had to leeches, fomentation and bland drinks—[and bleeding and bathing.—*S. K. J.*]

POISONING BY BROMINE.

Chlorine, Bismuth, Gold, Chrome, Platinum, Cobalt, Manganese, Nickel, and other metals.

Effects when swallowed.—These are little known as poisons; but produce, more or less, similar effects to iodine, arsenic, mercury, or copper.

WHAT TO DO.

The best treatment, in the absence of a knowledge of effectual counter poisons, is, to give copius draughts of milk, whey, or barley water, to promote vomiting. White of egg is an antidote to chlorine.

POISONING BY NITRE.

COMMON NAMES.	CHEMICAL NAMES.
Saltpetre---Salt of Nitre.	Nitrate of Potass.
Sal Prunelle.	Hydrated Nitre of Potass.

Saltpetre is sometimes taken in mistake for Glauber's salts, with dangerous consequences.

Effects when swallowed.—When an ounce or less of saltpetre has been taken in the stomach, it gives rise to obstinate vomiting of bloody matter, inflammation, burning pains in the stomach, purging of bloody matter, sinking of the pulse, and cold clammy sweats; followed by a sort of intoxication, palsy of the limbs, convulsions, fainting, great debility, and death in from three to ten, or sometimes sixty hours.—*Beck.*

WHAT TO DO.

The poison must be removed as speedily as possible, by an emetic of three or four grains of sulphate of copper, or by the stomach pump; and copious draughts of warm water, or of any bland liquid, may be given to promote vomiting.

POISONING BY LIVER OF SULPHUR.

The liver of sulphur, termed by chemists the sulphuret of potassium, as well as the sulphuret of sodium, is used in preparing medicated baths; such as Whitlaw's, which are therefore dangerous.

Effects when swallowed.---When three drachms, or more, of liver of sulphur are taken, there are produced burning pain, and sense of strangling in the throat, acrid taste in the mouth, frequent vomiting of sulphurous matter; mortal faintness, and death in fifteen minutes; the air of the chamber remaining tainted with sulphurous vapor.

WHAT TO DO.

Counter Poison, or Antidotes.---Common salt, or chloride of sodium and bleaching powder, or chlorinated lime, given, dissolved in water, will decompose and render harmless the deletereous fumes of sulphuretted hydrogen.---*Christison.*

Other Treatment.---Put two tablespoonfuls of vinegar, or lemon juice, in a tumbler of water, give immediately, and repeat it to promote vomiting. Then apply a dozen leeches, or more, to the throat, stomach and belly, to subdue the inflammatlon---[or bleed and bathe.---*S. K. J.*]

POISONING BY BARYTA AND ITS SALTS.

COMMON NAMES.	CHEMICAL NAMES.
Heavy Spar---Ponderous Earth---Barytes	Baryta, or Protoxide of Barium.
Muriate of Barytes--Hydrochlorate of Barytes.	Chloride of Barium.
Cauk---Heavy Stone.	Carbonate of Baryta.

Effects when swallowed.---The immediate effect of taking half an ounce, or even much less, of these poisons, are, violent vomiting, convulsions, palsy in the limits, head-ache, deafness, pains in the belly, hiccough, rending colic, change of the countenance, insensibility, convulsions, and death in from six minutes to one hour.

Counter Poisons, or Antidotes.---Half an ounce of Glauber's or Epsom salts, dissolved in a pint of water, should be given immediately; and if neither of these be at hand, the hardest pump water, or water rendered sour by vitriol, should be drank, in order to form thereby the harmless sulphate of baryta.

Other Treatment.---Vomiting should be promoted by giving sugared water, or any bland drink.

POISONING BY PHOSPHORUS.

Effects when swallowed.---If phosphorus, in substance, or dissolved in oil, or in water, be taken into the stomach, it catches fire and burns, producing inflammation, vomiting, exhaling the smell of garlic, violent convulsions, distressing priapism, and death in forty hours or more.

WHAT TO DO.

It is advisable to give an emetic of three or four grains of sulphate of copper, to use the stomach pump, and to drink copious draughts of water mixed with magnesia.---*Beck.*

POISONING BY CANTHARIDES, OR BLISTERING FLIES, AND CANTHARIDIN.

Effects when swallowed.---When taken either in powder, or dissolved in a liquid, this poison causes an acrid and very nauseous taste in the mouth, a burning heat in the throat, stomach and belly, retching, vomiting, and purging of bloody

matter; excruciating pain in the stomach, distressing priapism, and heat in the bladder, with pain and great difficulty of making water, and then often mixed with blood; great difficulty of swallowing, and sometimes even hydrophobia, or dread of water; the jaws at length become fixed, with general stiffness, frightful convulsions, delirium, and death in four days, or less.

WHAT TO DO.

Oil, which was formerly recommended as a counter poison to cantharides, is now found to be dangerous. The best treatment is, to use the stomach pump, if it can be instantly had; and if not, to give an emetic of three or four grains of sulphate of copper, promoting vomiting by warm water, or chamomile tea. Oil or oil fluids, may be injected into the bladder, or given as enemas or clysters, and the warm bath may be used with advantage; leeches may also be safely applied to the stomach. [Bleed and Bathe.---*S. K. J.*]

POISONING BY GLASS AND ENAMEL.

The common opinion that pounded glass is poisonous, is not true; though when glass, in fragments, is swallowed, it may occasion serious injury by wounding the internal parts.

WHAT TO DO.

The best treatment is, to cause the patient to eat large quantities of vegetables; such as beans, potatoes, cabbage, bread or the like, in order to fill the stomach, and protect it from the sharp angles of the glass.

POISONING BY LEAD.

Lead is frequently contained, by accident, in water kept in leaden cisterns, or running through leaden pipes; in milk, spirits, wine, beer, cyder, pickles, preserves, orange-flower water, &c.; when these are kept, or prepared in leaden vessels. Or it may be introduced intentionally to sweeten sour beer, cyder, and wine, or to color cheese, sweetmeats, &c.

Effects when swallowed.---When sugar of lead, or any of

the soluble salts of lead, are taken in the quantity of two drachms, or more, it produces a sugary, astringent, metallic and very disgusting taste in the mouth, tightness, and a sense of strangling in the throat; pains, more or less severe in the stomach; retching, and obstinate, distressing vomiting, often of bloody matter; but, in general, the effects are much less violent, though they usually end in the well known severe colic, termed the painter's colic.

WHAT TO DO.

Counter Poisons, or Antidotes.—It is the best practice to give immediately a large dose of Epsom or Glauber's salts, or of plaster of Paris, mixed with the hardest pump water that can be procured, any of which will decompose the poison, and form sulphate of lead, which is harmless. Phosphate of soda is also an excellent antidote. It is dangerous to give liver of sulphur.

Other treatment.—If the patient do not vomit, it will be proper to use the stomach pump; to give an emetic of 24 grains of sulphate of zinc, (*Christison;*) and to subdue inflammation by leeches or blood-letting.—*S. K. J.*

Effects of the Fumes of Lead.—When persons sleep in fresh painted rooms, and painters, miners, white lead manufacturers, or others, are much exposed to the fumes of lead, it frequently brings on distressing colic, termed the lead or painter's colic; with dryness of the mouth, vomiting, costiveness, numbness, or palsy in the limbs.

WHAT TO DO.

The best treatment is to give a smart dose of Epsom salts, followed in an hour by a grain of opium, or sixty to a hundred drops of laudanum; and repeating these two medicines, if necessary. "I have never seen the second dose fail to remove the colic." *Christison.* When palsy occurs, the bowels must be kept open, spirits applied to the palsied limbs, (*Apjohn;*) and the patient ought, if possible, to change his employment.

POISONING BY ACRID PLANTS.

Effects of acrid Vegetable Poisons when swallowed.—Soon after swallowing any of these poisons, there is felt an acrid, biting, more or less bitter taste in the mouth, with great dryness and burning heat; the throat becomes painfully tight, with a sense of strangling, distressing retching, vomiting and purging, and pains more or less severe in the stomach and bowels ensue; and these are succeeded by a quick and throbbing pulse, oppressed breathing and panting, a tottering gait, as if the patient were intoxicated, alarming weakness, sinking, and death. Sometimes there are convulsions more or less severe, acute pain, and causing plaintive cries, with stiffness of the limbs. The several poisons of this class, vary much in the violence of their effects.

WHAT TO DO.

The first thing is, to remove the poison from the stomach by means of the stomach pump, if one be at hand, or by tickling the throat with a feather or the finger, or by an emetic of 24 grains of sulphate of zinc, (but not tartar emetic nor any acid,) promoting the vomiting by copious draughts of warm water, sugared water, barley water, milk, or other bland liquid, (but by no means vinegar.) When stupor, or intoxication, comes on, give several cups of strong coffee, made by pouring a pint of boiling water on eight ounces, and straining it through linen or blotting paper: it must not be boiled. If the coffee do not remain on the stomach, some may be given in the form of enema or clyster, and three or four grains of camphor may be taken in the yolk of an egg. Laudanum or decoction of poppies will be useful to subdue convulsions; and leeches to lessen the pain of the belly.

Effects when applied to the skin, or to wounds and sores. When acrid vegetable poisons are rubbed upon the skin, or applied to sores or wounds, they not only produce great irritation of the parts, but often a spreading inflammation, some-

times affecting the stomach and bowels, as in the case of croton oil, in the same way as when swallowed.

WHAT TO DO.

With the exception of exciting vomiting, the treatment must be similar to what has been directed, when the poison has been swallowed.

II. Stupefying, or Narcotic Poisons.

This division comprehends certain plants, such as poppy, henbane, bitter sweet, poison lettuce, yew leaves, bay, cherry laurel, and vegetable productions, such as opium and prussic acid.

General Effects.—These poisons in general act with great rapidity; producing stupor, drowsiness, palsy, apoplexy, convulsions, and death.

Mistakes of poisoning, for natural diseases they may resemble, may be avoided, by considering, that a fit of apoplexy or epilepsy, usually gives warning, for some days, by headache, giddiness, &c., and comes on abruptly; while narcotic poison comes on gradually. There is, in inflammation of the brain, usually fever; in narcotic poisoning, none.—*Christison.*

POISONING BY PRUSSIC ACID.

The prussic acid, termed by chemists hydrocyanic acid, is contained in cherry-laurel, cherry-laurel water and oil, in the peach, in the bird cherry, or hagberry, in the sloe, in the bullace, in the common cherry, in the bitter almond, in the mountain ash or rown tree, and in the kernels of most stone fruit. It is the prussic acid which gives to these, and to sherry wine, the agreeable bitter nutty flavor. The strong acid is rarely made.

Effects when swallowed, or applied externally.—This is the most powerful and rapid poison known, as one or two drops put into the eye, or on the tongue of the strongest dogs, will kill them in one or two minutes. When a person swallows a quantity not sufficient to prove instantly fatal, it pro-

duces weight and pain in the head, particularly in the back part of the head, rapid pulse, nausea, and sometimes salivation. In a large dose, death is preceded by convulsions, resembling lockjaw. In cases instantly fatal, the patient dies almost as if shot.—*Apjohn.*

WHAT TO DO.

Counter Poison, or Antidoes.—Solution of chlorine or of ammonia smelling salts, or hartshorn, should be applied, by a feather, to the nostrils, or by holding the head over a vessel containing the chlorine, diluted with about twelve waters, to prevent inflammation from the vapor.

Other Treatment.—Cold water should be dashed over the patient to rouse him, and repeated every fifteen minutes. *Herbert.* Brandy and water may be also given to support the sinking powers.—*A. B. Granville.*

POISONING BY OPIUM AND LAUDANUM.

The disguised preparations of opium, often given to infants, such as American Soothing Syrup, Daffy's Elixir, Dalby's Carminative, Godbold's Balsam, Hive Water, Bateman's Drops, &c., poison many fine babies—a practice well exposed by Boz, in his Oliver Twist, and by the Dispatch newspaper.

Effects when swallowed.—The first effects of a poisonous dose of opium or laudanum are, in from a few minutes to several hours, stupor without previous excitement, giddiness, numbness, heaviness of the head, inclination to sleep at first slight, and afterwards irresistible, followed by intoxication, a stupid look, and furious or merry delirium. Sometimes pain and convulsions more or less severe, palsy of the legs, and death. In cases of recovery, the patient may sleep for twenty-four or thirty-six hours, and awaken with nausea and vomiting.

WHAT TO DO.

The stomach pump, if at hand, must be instantly had recourse to do; and, if not, tickling the throat with a feather,

or the finger may be tried. Emetics dissolved in a *small* quantity of water, may also be tried; such as twenty-four grains of sulphate of zinc, or three or four grains of sulphate of copper, or one grain of tartar emetic, repeated, if necessary; but the stomach is so often torpid, that vomiting cannot be produced; in such cases, dashing cold water over the head, sometimes rouses the patient and brings on vomiting. *Grater.* The patient should also be dragged up and down, between two men, or shaken and driven with speed over rough roads, in a cart. *Apjohn.* Pulling the hair, so as to give pain, and ejecting water into the ears, are also recommended.—*Christison.*

No vinegar, lemonade, cream of tartar, coffee, nor other liquids, should be given, till the poison is removed from the stomach, when they may be of advantage.

POISONING BY HENBANE, OR HYOSCYAMUS.

Effects when swallowed.—This poison produces giddiness, loss of speech, trembling, intoxication, violent delirium, lethargic sleep, and death.

WHAT TO DO.

The treatment must be similar to that just recommended in poisoning by opium.

III. Narcotico-Acrid Poisons.

Under this division are arranged poisons possessing a combination of the properties of the first two divisions; among which are certain plants, such as deadly nightshade, hemlock, tobacco, and virulent mushrooms; and certain vegetable productions, such as camphor, ardent spirits, strychnia, and spurred rye or ergot.

POISONING BY DELETERIOUS MUSHROOMS.

Mushrooms may be suspected, when they grow in moist shady places, have many or gaudy colors, are moist, dirty, or bitten on the surface, and have soft stems.

Effects when swallowed.—When poisoned ketchup, or stewed deleterious mushrooms, have been taken, in from five to twelve hours or more, nausea, heat, and severe pain of the stomach, and often vomiting and purging, are produced, with insatiable thirst, convulsions, fainting, delirium, stupor, cold sweats, and death.

WHAT TO DO.

Use the stomach pump, and give emetics, the same as directed under poisoning by opium. When inflammation of the stomach and bowels comes on, leeches should be applied, and the bowels cleared by brisk purgatives, such as an ounce of Glauber's salts, given in three doses, at twenty minutes interval.

POISONING BY NUX VOMICA.

Effects when swallowed, or applied to wounds.—The usual effect of these poisons is upon the brain and spinal marrow, causing convulsive stiffness, with the head drawn back upon the shoulders, and the breathing very irregular, often almost stopped, when death, without inflammation, speedily ensues. Intervals of intermission sometimes take place, but the symptoms soon return with increased violence. Strychnia, next to prussic acid, is the most frightful poison known; the sixth part of a grain killed a dog in two minutes; and one-third of a grain killed a wild boar in ten minutes.—*Christison.* Brucia is twenty-four times less powerful.—*Andral.*

WHAT TO DO.

It is of the greatest moment to remove the poison from the stomach by the stomach pump, or by tickling the throat with a feather or the finger; or an emetic, of 24 grains of sulphate of zinc, should be given. Iodine or chlorine, are newly-reported counter poisons, but a delay of ten minutes in giving them, renders them of no avail.—*Donne.* When breathing stops, air must be blown into the lungs, as recommended below, in cases of drowning; and a spoonful should be given every ten minutes, of a mixture composed of a

drachm of ether, two drachms of spirits of turpentine, half an ounce of sugar, and two ounces of water.

POISONING BY NIGHTSHADE, HEMLOCK, &c.

Tobacco, Thorn Apple or Jamestown Weed, Foxglove, Digitaline, &c.

Effects when swallowed, or applied to a wound.—The usual effects are great agitation, pain, piercing cries, convulsive movements of the face and limbs; delirium, more or less merry; retchings, obstinate vomiting and purging, pains in the belly, more or less severe; a sort of intoxication, with trembling, great depression, sinking of the pulse, and death.

WHAT TO DO.

Similar treatment will be advisable with that directed under opium, particularly an emetic will be indispensable, followed by a brisk purgative of Glauber's salts. Should there be much stupor, blood should be taken from the arm, or from the jugular vein; and a dozen leeches should be applied to the belly, with fomentations and draughts of linseed tea, or other bland fluids. [After blood-letting, the vapor bath.—*S. K. J.*]

DANGEROUS INTOXICATION, OR POISONING BY INTOXICATING LIQUORS.

The alcohol, or spirit of wine, contained in wine, ale, beer, cider, or other fermented liquors, when taken in too great quantity, is a true poison.

Effects.—The chief symptoms produced by this sort of poisons, are violent excitement, flushing of the face, giddiness and delirium, soon followed by dozing and dangerous sleep, from which the patient only awakens to die. In more severe cases, the face becomes livid, or ghastly pale, with stertorous breathing, and speedy death.—*Christison.* When the pupil of the eye is dilated and motionless, recovery is rare.—*Bedingfield.* Cold extremities and clammy sweat, often accompany the lethargic sleep.

WHAT TO DO.

The stomach pump is, in dangerous cases of intoxication, invaluable, if soon enough procured; and if not, tickling the throat; or a smart emetic should be given, and vomiting promoted by warm water, mixed with vinegar or lemon juice. The whole body should be rubbed with cloths dipped in warm vinegar; and the torpor should be subdued by leeches to the neck.

IV. Putrefying, or Septic Poisons.

The poisons, in this division, are those derived from animals, living or dead, such as poisonous serpents and insects, mad dogs, diseased fish, rancid bacon or beef, and the like.

POISONING BY MUSSELS AND OTHER FISH.

The fish that have produced the effects of poisoning, the causes of which are quite unknown, are the mussel, the oyster, the crab, the herring, the trout, the mackerel, the salmon, and the eel. Similar effects have occurred from eating diseased beef, rancid, or rusty bacon, &c.

Effects.—In a few hours, and sometimes not for nearly a day, after eating the fish or meat, the patient is seized with irregular chills, acute pain in the stomach and head; restlessness, great thirst, redness and swelling of the face and eyelids, distressing itching, and red or puffy blotches all over the body, like severe nettle-rash, convulsions, and sometimes death, in from three hours to three days.—*Apjohn.*

WHAT TO DO.

If the symptoms appear within an hour or so, an emetic should be given; if longer time has elapsed, a brisk purgative of Glauber's salts, and strong lemonade should be drank.

POISONOUS BITES OF SERPENTS AND INSECTS.

The only venomous serpents in this country are the adder or viper, moccoson and rattlesnake—the snake, slow worm,

and toad being harmless; our chief venomous insects are the bee, wasp, and hornet.

Effects.—In the part wounded, a sharp tingling pain, is felt, which soon extends all around, with swelling, at first reddish and afterwards livid. In slight cases, this produces little constitutional derangement; in delicate children and females, and in severe cases, there are fever, sickness, nausea, vomiting, convulsions, and, sometimes, jaundice, difficult breathing, loss of sight, cold sweats, mortification of the wounded part, and death, sometimes lingering for several months, or even for years, with symptoms resembling consumption of the lungs.

WHAT TO DO.

If a cupping glass be at hand, it should be instantly applied over the part, or it may be safely sucked by the mouth, and as much blood drawn as possible, to wash out the poison. If this be not done within a few minutes, the part should be burned with aquafortis, caustic potass, or a red hot iron, and afterwards covered with surgeon's lint, dipped in equal parts of sweet oil and hartshorn. A moderately tight bandage *above* (not over) the wound will tend to prevent the poison getting into the blood. It is important to encourage perspiration, by giving six or eight drops of ammonia, or hartshorn, in a glass of chamomile water, and by covering up the patient in a warm bed, and applying the bath. In slight stings of insects, salt water, or hartshorn and oil, may be applied, after the sting has been extracted by a needle. [For snake or spider bite, bleed and bathe, and if the pain continue, repeat the bath.—*S. K. J.*]

HYDROPHOBIA FROM BITES OF MAD ANIMALS.

Dogs are the most common causes of this frightful disease; but it also may be caused by cats, pigs, or any other infected animal, chiefly in very hot or in very cold weather.

Effects.—From the twentieth to the thirtieth, or fortieth

day, sometimes even three or four months after the bite, the patient is seized with pain in the part, even if the wound be healed, with uneasy anxiety, languor, cramps, horror, disturbed sleep, and oppressed breathing. These symptoms rapidly increase with violent convulsions, hideous distortions of the face, swelling of the tongue, with clammy, virulent saliva, horror of fluids, (but not always,) with impossibility of drinking; bilious vomiting and death.

WHAT TO DO.

As hydrophobia, when it once forms, is altogether incurable, every means of prevention should be tried. The bitten part should be immediately and fearlessly cut out to some extent, and cupping glasses instantly applied over the parts, to extract all the poison, if possible; making still more sure, by bathing, with warm water, as long as blood will flow into the glasses. After this, a red hot iron, or any caustic, should be applied to the wound, and the whole covered with a carrot poultice, and suffered to heal. Perspiration should be promoted by hot drink, and a warm bed. [Use the vapor bath—*S. K. J.*]

Dogs, cattle, and other animals, when bitten, should have the bitten part treated in the same way.

ACCIDENTS.

APPARENT DEATH, SUSPENDED ANIMATION, OR ASPHYXIA.

This class of accidents, from frequent occurrence, is rendered of little less importance than poisoning.

APPARENT DEATH FROM CHARCOAL VAPOR AND CARBONIC ACID GAS.

This may occur in close rooms where charcoal or coke is burning; near lime kilns, from the reek; in coal pits, wells, and morasses, but most commonly in breweries and similar places, where much carbonic acid is produced by fermenting liquors; and in very crowded rooms, from the breath of the people. It gives no warning, from being devoid of smell, and the air can only be tested by a candle, which will not burn in carbonic acid gas.

Effects when breathed.—The first observed effects, are slight giddiness, and inclination to sleep; but in severer cases, there is a sense of weight in the head, and soon, stertorous breathing and death-like sleep.—*Sir H. Davy.* The person becomes, at length, motionless, with the limbs sometimes stiff and distorted; at other times, easily bent. The heat of the body remains natural.

What to do.—The first thing to be done, is to remove the person to the open air, and however cold the weather may be, to take off the clothes, laying him on his back, with

his head propped high. It is dangerous to fumigate with tobacco, or to place him in a warm bed. Cold water, or what is better, vinegar and water, dashed over the body, and towels, dipped in this, should be rubbed upon the face and chest, wiping dry the wetted parts in three or four minutes with hot towels; and repeating these processes more than once. If the patient can swallow, cold lemonade, or vinegar and water, should be given; hartshorn, or smelling salts, or sulphur matches, should be lighted and passed under the nostrils, which might also be irritated with a feather. Rubbing the back, the soles of the feet, and palms of the hands, roughly with a brush, is also good. Blood, if it will flow, should be taken from the arm, from the jugular vein, or by cupping from the neck.—*Apjohn.* But by far the most important remedy, is to keep up artificial breathing, by blowing into the lungs with a pair of common bellows; with the mouth; or, what is better, with the double bellows, continuing this for five or six hours, even where there are no signs of life. When the patient is once roused, he should be placed in a warm bed with the windows open; and may have a glass of good wine, or brandy, and he must be carefully watched, lest he relapse.

APPARENT DEATH FROM HYDROGEN GAS.

Sulphuretted hydrogen gas is generated in common sewers, water closets, necessaries, foul pools and some mineral springs; and it is the cause of a disgusting smell. Carburetted hydrogen gas, or coal gas, is the well known gas used for lighting our streets, but is not so deleterious as the former.

Effects when breathed.—In slight cases, there are uneasiness, inclination to vomit, convulsive motions in the muscles of the joints and chest, cool skin, and irregular, but free breathing. In more serious cases, there is a loss of sense and consciousness: the body is cold; the lips and face, livid; a bloody froth comes from the mouth; the breathing is

short, oppressed, and convulsive; and the limbs are relaxed. In still more dangerous cases, the body is bent backwards, and the patient bellows somewhat like a bull; the heart palpitating irregularly and tumultuously.

WHAT TO DO.—In the first instance, expose the patient to the open air, dash cold vinegar and water over him, and rub the body as directed in cases of charcoal vapor. Then if chlorine can be had, it is important to pass the bottle containing it, cautiously under the nose. Bleed from the arm, or the jugular vein; and this repeated, if necessary, will tend to allay the palpitation of the heart; and the cold bath will be useful for cramps or convulsions, rubbing dry after it, and putting the patient in a warm bed. If there be no signs of life, mustard poultices, or boiling water, in bladders, may be applied to the soles of the feet, in order to produce immediate blisters.

APPARENT DEATH FROM DROWNING.

Effects.—When a person has been under water for about twenty minutes, more or less, there is little chance of recovery, though means should always be tried. The warmth of the body, and the clearness and motion of the pupils of the eyes, are the surest signs of life not being extinct, of which the stiffness of the body is chiefly to be relied on, as a sign of death.

WHAT SHOULD NOT BE DONE.—As it is not the water getting into the lungs, according to vulgar opinion, that causes death, but the want of air and stoppage of breathing, a drowned person ought not to be hung up by the feet to let out the water, little or none being swallowed. Violent shaking, or rolling on casks, to rouse the patient, will also be dangerous; as it also is to give tobacco, or the smoke of tobacco, in form of enema or injection. The body must not be rubbed with salt nor spirits.

WHAT TO DO.—With the least possible delay, even when the patient is received into a boat (*Portal*)—he should, with-

out jolting, be laid on his right side, on a plank or mattrass, with his head uncovered and a little raised; the wet clothes must be quickly removed by cutting them open, the water let out from the mouth by opening the jaws; the body rubbed dry; and then covered immediately with the spare clothes of the bystanders, till warm blankets be got ready, in which the patient is to be wrapped.

It is important that the body be warmed very gradually, and the best thing for this purpose is a warm bath, about as hot as the hands can easily bear; but in default of this, fill bladders with warm water, or heat bricks, and apply to the pit of the stomach, to the arm-pits, between the thighs, and to the soles of the feet, and the palms of the hands. Then pass backwards and forwards upon the skin, particularly along the back, a covered warming pan, a heated smoothing iron, or a bag filled with hot ashes. The skin ought also to be briskly rubbed all over, with the hand, or with a dry brush, or hot flannel, continuing the other means, just recommended, at the same time. [Use our bath.—*S. K. J.*]

It will tend to rouse the patient, to apply cautiously under the nostrils, lighted brimstone matches, smelling salts, or hartshorn, or to tickle the nose with a feather. In order to restore breathing, introduce the pipe of a common bellows (when a special apparatus is not at hand) into one nostril, carefully closing the other and the mouth. At the same time, draw downwards, and push gently backwards, the upper part of the windpipe, popularly termed Adam's apple, to allow a more free admission of air: blow the bellows gently so as to inflate the lungs, till the breast be perceptibly raised a little. The stopping of the other nostril and the mouth, should then be discontinued, and the breast be pressed with the hand, repeating this so as to imitate the process of breathing, till life appears.—*Humane Society's Directions.*

If the patient still remain insensible, small bits of cork, or paper, or of German tinder, should be burned on the pit of

the stomach, on the thighs, and on the arms. If the limbs be warm and easily bent, but the face livid or black, blood may be taken from the jugular vein, or from the foot; but this need not be done when the skin is cold, and the limbs stiff.

When there are signs of recovery, inject into the stomach, by means of an elastic tube and syringe, half a pint of warm wine and water, or good spirits and water; and when the patient can swallow, a spoonful of wine or cologne water, diluted with two waters, or a teaspoonful of camphorated spirit, may be given every five or ten minutes, and he must be forced to drink so long as there remains difficulty of swallowing.

It is important to continue the means for four, five, or more hours; even eight or ten hours are very often not sufficient to establish recovery.

APPARENT DEATH FROM STRANGLING OR HANGING.

Effects.—From the return of the venous blood being stopped by the rope, &c. round the neck, the face is rendered black, the eyeballs stand out from their sockets, and the nostrils are wider than in natural death.

What to do.—After the rope, &c. has been removed, the taking of blood from the jugular vein is advisable, as well as all the other means directed under Drowning, except artificially warming the body, which will, in most cases, be unnecessary. The bellows may be considered the most important agent.

CHOKING FROM ANY SUBSTANCE IN THE WINDPIPE.

Every morsel that is swallowed, slides slowly over the top of the windpipe; but is prevented from getting into it, by a sort of moveable lid, or valve, called the epiglottis, which the passing morsel shuts down. But if a breath be drawn during the act of swallowing, this lid is raised, and part of the morsel, or of the drink, may thus get under the lid.

CHOKING FROM ANY SUBSTANCE IN THE GULLET.

If a splinter of bone, a pin, or the like, be accidentally swallowed, and stick in the gullet, it will produce great uneasiness to the sufferer, though it may not be dangerous.

What to do.—A plentiful draught of water, or twirling round a large goose or swan quill, will sometimes dislodge the substance, and make it fall down into the stomach, whence it may be brought up by vomiting. Even after its removal, a roughness or soreness remains, which makes the sufferer think it is still there. When the substance is large and not far down, it may be extracted with a pair of forceps; if it be too far down for that, it may be pushed into the stomach with a thin piece of whalebone, with a piece of sponge attached to the end of it, called a probang.—*Mac Fayden.*

APPARENT DEATH FROM A STROKE OF LIGHTNING.

The effects of lightning on the body are, general paleness of the surface, the limbs remaining warm and easily bent, long after life is extinct.

What to do.—The only probable means of restoration, are galvanism or electricity, with the use of the bellows, and wine, as directed under Drowning.

APPARENT DEATH FROM TOO GREAT HEAT.

When a person becomes insensible, from being in too hot a place, he ought, without loss of time, to be removed into the fresh air, to be undressed, or, if very cold, his clothes loosened; to have an enema, or injection of salt and water, with six to twelve leeches on the temples, and if he can swallow, a little vinegar and water, or lemonade, should be given. In other things, proceed as directed for Charcoal Vapor.

APPARENT DEATH FROM TOO GREAT COLD.

Effects.—Exposure to intense cold produces a general numbness, a sort of intoxication, irresistible and rather pleasing inclination to sleep, which soon comes on, with loss of

consciousness and insensibility, and from which the patient rarely awakens.

WHAT TO DO.—The body should, on finding it, be wrapped in a blanket, leaving the head uncovered, till conveyed to a house, when the clothes must be taken off, and the skin rubbed with snow, pounded ice, or cold water, rubbing *from* the body *towards* the extremities; to be succeeded by rubbing with cloths dipped in milk-warm water, it being important to restore warmth, not suddenly, but very gradually. When no snow nor ice is at hand, a cold bath; very gradually heated, may be advisable. When the skin begins to feel warm, the sufferer may be put into a cold bed, and the bellows and other means used as under Drowning.

FROST BITE, AND FROZEN LIMBS.

Effects.—When the extremities, or any part of the body, is exposed to intense cold, the circulation of the blood, and the feelings of the nerves are destroyed, by the parts freezing.

WHAT TO DO.—If the frozen part is suddenly thawed by heat, speedy mortification comes on; therefore, the best thing to do, is to restore warmth very slowly, by rubbing the part with snow, or ice water; and at first, to give no heating or stimulant liquors internally; lying on a cold bed is good.

APPARENT DEATH IN NEW-BORN INFANTS.

In the absence of medical attendance, if the skin be pale and bloodless, the navel string must, on no account, be cut, nor twisted, nor dragged; but the head should be raised, and the face exposed to the air, while the body is to be wrapped in flannel, and the back and the soles of the feet rubbed with a soft hand. Artificial breathing through a quill, or any small tube, should be tried, as directed under Drowning.

On the other hand, if the face be livid, or black and swelled, the skin discolored, and the chest as if filled with blood, cut the navel string instantly, and encourage it to

bleed, by holding up the head and rubbing the chest and belly with warm cloths. Should little or no blood flow, apply one or two leeches behind the ears, and put the sufferer in a warm bath, with which some wine, brandy, or vinegar, may be mixed; and use the quill for artificial breathing as just directed.

INSECTS, SAND, AND OTHER SUBSTANCES IN THE EYES.

If a grain of sand, an insect, or any small substance, get into the eye, it will produce irritation and inflammation, and may either cause dimness, or entire loss of sight.

What to do.—When the substance lies loosely on the surface of the eye, it may be easily removed by means of a camel hair pencil dipt in oil; or, what is, for the most part, more easily procured, a bit of paper rolled into the size of a quill, and softened in the mouth.

When the substance is fixed in the coats of the eye, an accident frequent among blacksmiths, and termed by them, fire in the eye, it may be removed by the thumb-nail, by the tongue, or by a blunt pointed piece of wood. If none of these are successful, application must be made to a surgeon.

INSECTS, AND OTHER SUBSTANCES IN THE EAR.

The opening into the outer ear, as far as the drum, is only about half an inch, and is defended by a sort of down, as well as by a kind of soft wax. Among boys at school, bits of slate pencil, peas, and other things, sometimes get into the ear, and occasion much uneasiness. Bed bugs and other insects, also creep occasionally into the ear.

What to do.—Peas, and such small substances, must be extracted by means of a pair of forceps. Insects may be killed, by dropping in any sort of oil, such as oil of almonds, or sweet oil.

ACCIDENTAL BURNING OR SCALDING.

Burns or scalds may either be trifling or serious, and even dangerous, according to their extent, or to the constitution of the patient. Young children, or infants, seldom recover

from such accidents, when of much extent, for their skin is so tender, that a common medical blister heals with difficulty, if at all.

Burns or Scalds of small extent.—The danger lies chiefly in the extent of the portion of the skin injured; for a deep burn of small extent, may not be dangerous; while a superficial scald, of considerable extent, may prove fatal.—*S. Cooper.*

What to do.—The part injured should be plunged, or bathed in pounded ice, or very cold water, mixed with some quick-lime, or sugar of lead, renewing it as soon as it becomes warm, and continuing the application till the pain is subdued, when it may be wrapped up in bandages, dipt in lime water, or sugar of lead water.—*Sir J. Earle.* The blisters, if any, should not be broken for two or three days, lest the pain should be increased, nor delayed longer, lest ulcers might form; at that time, they may be opened with a needle, to let out their serous fluid or water, and dressed with cerate, spread on linen, keeping down inflammation by bathing with sugar of lead water, and if that be not effectual, apply a linseed or other poultice. When the pain is distressing, so that the weight of the dressing is insupportable, the part should be annointed by a camel-hair pencil, with Carron oil, made with equal parts of linseed, or sweet oil, and of lime water, shaken together. The patient should be kept on low diet, and have a brisk dose of salts and senna. When ulcers form, they should be dressed with creasote ointment, to prevent scars.

DEEP BURNS.

When the burn is deep, the surface will appear to be scorched, as if charred, with more or less inflammation around it.

What to do.—The best application, in this case, will be a linseed, or other poultice, smeared with camphorated oil, if it can be borne; and if not, it should be dressed with ce-

rate, till the charred portion comes off, when it must be dressed, twice a day, with surgeon's lint, on which is spread some crease ointment. This will tend to prevent a scar. Oily salves are improper.

EXTENSIVE BURNS, OR SCALDS.

If a burn or scald, though not deep, be spread over a considerable surface of the body, the accident is dangerous, and may become fatal. The accompanying pains are excruciating, and the consequent fever and inflammation usually run high.

What to do.—The application of cold, which answers in non-extensive cases, is apt to cause shivering, to hasten feverishness; and though it ease the pain for a time, this soon returns with increased severity. Instead of cold applications therefore, repeatedly bathe the injured parts with linen cloths, dipt in warm spirit of turpentine, or spirit of wine, whether the skin be blistered or not, and afterwards dress with a cerate, made with one part of oil of turpentine, and two parts of basilicon ointment, spread on linen. The smarting pain caused by this, at first goes off in an hour or two, and much ease is felt. This dressing must be renewed in twenty-four hours, by small portions at a time, to prevent exposing the sore to the air, while all blisters may be opened with a needle. The parts should be bathed with common spirits, with vinegar, or with laudanum slightly warmed, and dressed with Turner's cerate, or sugar of lead ointment.—*Kentish.* If there be much inflammation, a warm linseed poultice will be advisable, to remain on for six or eight hours, and if the surface be raw, it may be entirely covered with finely powdered chalk, in order to absorb all moisture, and the poultice may be applied over this.—*Cleghorn.*

RUFFLED SKIN, OR ABRASION.

When the thin, insensible scarf skin is accidentally destroyed, the inner and thicker skin, which is very sensible,

on exposure to air, is irritated, and rendered painful by the oxygen in the air acting on the fine tips of the nerves.

WHAT TO DO.—All sand and dirt should first be removed from the injured part, by means of warm water, and linen dipt in spirits and water, should be applied, till the pain is somewhat subdued. The parts ought then to be defended from the air, by a piece of dry surgeon's lint, or caddice, and a poultice should be laid over it, if there be much inflammation, or swelling. If a sore of any size should form, it may be dressed with creasote ointment, to prevent a scar.

CHAFED SKIN, OR EXCORIATION.

If the skin be galled by riding, or, in infancy, by inattention to cleanliness, it ought to be bathed with warm milk and water, to clean it; and afterwards with cold water, to wash off the milk and remove inflammation. Fine Fuller's earth, moistened with water, or spermaceti ointment, is good for anointing the parts. If there be much pain, a bread and water poultice may be advantageous.—*Hamilton.* Dust the part with lapis calaminaris.—*S. K. J.*

CUTS AND WOUNDS.

The danger of cuts or wounds may be partly inferred from the parts injured; wounds in the belly, for example, being more dangerous than in the limbs; and an inference may al-be drawn from the bleeding. When a large vein has been cut, the blood will come away of a dark color, and a continued stream; when a large artery is cut, the blood will come in pulse-like jets, and of a bright crimson color.

WHAT TO DO.—In slight cases, let the bleeding continue for an hour, if it do not stop sooner, taking care to remove all dirt, or other matter, that may have got into the wound. When the bleeding ceases, bring the edges of the wound neatly together, and keep them so with slips of heated sticking plaster, and do not remove this for two or three days, when it will usually be found healed. If it inflame, it must be poulticed. In slight cases, salves are now disused by all

good surgeons, as worse than useless. In severe and alarming cases, little can be done without a surgeon; but when dark venous blood flows, strong pressure a little below the part will tend to stop it; and when bright arterial blood jets out, similar strong pressure a little above may do good; covering the part with cloths will only conceal the danger. Cold water, or turpentine, or Friar's balsam, may tend to stop the bleeding, perhaps; but not when large vessels have been cut. A strong silk handkerchief, twisted tight on the limb, below or above the injured part, according as the blood is dark or bright, may often be advisable.—*MacFayden.* When the bleeding has been stopt, the edges of the wound are to be brought together, and treated just as directed for slight cases, using bandages when the sticking plaster is not strong enough. If it becomes inflamed use dry heat—a shovel of coals.

BRUISES.

In all bruises, the nerves are affected, causing a sort of stunning pain. Swelling and discoloration are caused by blood vessels, small or great, being burst, and the blood being effused around, particularly when the bones are near the surface, as on the shins and the head. Inflammation of the injured parts generally follows in an hour or more.

What to do.—In slight cases, bathe the parts with vinegar and water, or spirits and water. In severe cases, particularly near the joints, it is important to prevent inflammation, which might lead to white swelling, &c. For this purpose a dozen or more leeches should be applied. Then use dry heat—bleed and use heat intensely.—*S. K. J.*

SPRAINS.

When the ligaments of the ancle, of the wrist, or of other parts, are twisted, or over-stretched, there are produced weakness, and more or less pain, which increases with the consequent inflammation. The parts swell and become tense, red, and warmer than natural. If neglected, or if the sufferer is

of a particular constitution, sprains may end in white swelling, or incurable lameness.

WHAT TO DO.—The sooner the better, bathe the part with three parts of cold water, mixed with one part of laudanum, and one part of any common spirits; and bind up the limb with a moderately tight bandage, and laying it horizontally, in a state of absolute rest. If inflammation do come on, bleed and apply dry heat with a shovel of burning coals.—*S. K. J.* Those who know how difficult it is to get rid of even trifling sprains, will not think this too severe treatment.

BONES BROKEN OR FRACTURED.

When a limb has been broken, there is not only a loss of motion, as when out of joint, but more or less distortion and swelling, while the broken ends of the bones may, by handling, be made to produce a grating sound.

The best advice, in this case, is to get a surgeon as soon as possible, or remove the sufferer, on a board, to an hospital. If neither can be done, the injured limb must not, on moving, be allowed to hang down. The limb is set by bringing the broken ends of the bones together, and keeping them in their place with splints and bandages. If they be displaced, the limb will heal in a distorted form. The bones generally unite in from thirty to forty days, and sooner in the young than in the old. When inflammation occurs, it must be treated as directed under Sprains.

LIMBS OUT OF JOINT, OR DISLOCATED.

When the head of a bone is dislodged from its socket, the form of the joint is changed, the limb cannot be moved, and it is rendered sometimes longer, and sometimes shorter.

WHAT TO DO.—Delay here is productive of the worst consequences; for, at first, it is comparatively easy, though after a while, sometimes impossible, to replace the bone. Great force is often necessary to draw the limb out far enough to

get the head of the bone over the edge of the socket, but it can rarely be done without surgical aid.

A FAINTING FIT, OR SYNCOPE.

In consequence of exhaustion from fatigue, long fasting, violent passion, severe pain, wind in the stomach, and the like, the patient grows deadly pale, and is deprived of sensibility, the eyes become dim, the hearing is gone, the pulse stops, breathing is imperfect, and the voice is lost. The fit seldom lasts beyond a few minutes, but leaves the patient languid or sick.

What to do.—The coming on of a fainting fit may be sometimes prevented by drinking a glass of cold water, or wine. When it takes place, throw open the windows, sprinkle cold water on the face, and cautiously hold smelling salts, or a lighted brimstone match, under the nostrils. On reviving, a glass of water or wine will be advantageous.

CONVULSIVE FITS.

Infants and children are very subject to convulsive fits, from teething or disordered bowels, and sometimes from water in the head, hooping cough, &c. When dangerous, the body is often bent back, the features distorted, and the eye fixed or rolling. A fit may continue from a few minutes to several hours.

What to do.—As the fit may end in death, the child should, without delay, be put into a warm or cold bath, till it go off, and cold water should be sprinkled on the face. When the fit continues long, apply two or three leeches to the temples, and give a laxative enema, or injection. [We say let it be bled.—*S. K. J.*]

HYSTERIC FITS.

Before the fit oomes on, there is a feeling as if a ball were rising in the throat, threatening suffocation, and the sufferer soon falls down, the body being twisted, the hands clenched, while the person rolls about, screaming, crying, or laughing

involuntarily. As the fit goes off, the patient remains for a time stupid, and half insensible.

WHAT TO DO.—The fit may sometimes be prevented by taking twenty or thirty drops of laudanum, and as many of ether, in a glass of water. Open the windows, and loosen the tight parts of the dress; sprinkle cold water on the face. If the patient be of a full habit, let blood.

A FIT OF APOPLEXY.

Apoplexy is caused by too much blood pressing on the brain. Sometimes the person falls down suddenly; at other times, there is previously violent head-ache, high fever, and delirium.

WHAT TO DO.—In this case it will be dangerous to apply lighted brimstone matches, or smelling salts to the nostrils; or to introduce wine or other strong liquor into the stomach, as directed for Fainting or Hysterics. The patient should be placed in an upright posture, supporting his head to prevent any bend in the neck, while the neckcloth must be removed, and the shirt collar unbuttoned. Bleeding is often important, but must depend on medical advice.

FITS OF FALLING SICKNESS, OR EPILEPSY.

This more resembles a fit of hysterics, and is often brought on by drinking, by violent passions, &c. An attempt to feign epileptic fits, may readily be detected by feeling the pulse, which is suspended or very irregular in genuine epilepsy; in which also there is frothing at the mouth, imitated, however, by means of soap.

WHAT TO DO.—Raise his head, and put a piece of soft wood or cork of suitable size, if possible, between the teeth, to prevent his biting his tongue. Then proceed as for Hysterics.

MEDICAL PRESCRIPTIONS.

CATHARTIC, OR ANTI-BILIOUS PILLS.

Take aloes, (socotrine,)	dr. i.	castile soap,	dr. i.
powdered jalap.	dr. i.	gambouge,	gr. xv.
calomel,	dr. i.		

Scrape or powder the soap very finely; add half a small teaspoonfull of water, mix the mass well. The whole will make sixty pills. As each pill will contain one grain of calomel, the dose may vary from one to six, as the occasion may require.

ANOTHER FORM OF ANTI-BILIOUS PILLS.

Compound extract of Colocynth,	dr. i.	Gambouge,	gr. xx.
Powdered jalap,	dr. i.	Calomel,	dr. i.
Castile soap,	dr. i.		

Prepared as the Cathartic Pill. Dose the same.

THE MINIMA PILL.

Take Calomel,	gr. v.	Ipecacuanha,	gr. v.

Crumb of corn or wheat bread, size of a large pea.

Work them well together, and the mass will make 25 pills. One is the dose, to be repeated once, twice, or three times a day. If continued too long, may produce a sore mouth.

COMPOUND BLUE PILL.

Take blue mass,	dr. i.	castile soap,	dr. i.
rheubarb, powdered,	dr. i.	ipecacuanha,	gr. xv.
aloes, powdered,	dr. i.	water, about forty drops, or q. s.	

Work the materials well together; the mass will make sixty pills; the dose, one, two, three, or four. They will be gently aperient.

ANODINE ALTERATIVE PILL.

Tale calomel, gr. vi.; ipecacuanha, gr. vi.; Opium, gr. iv.—make 25 pills.

ANTI-BILIOUS PILLS

Made of calomel and ipecacuanha, one grain of each to a pill,

and repeated every third hour, will operate very gently. If made of three or five grains each, and repeated in the same manner, they operate with sufficient effect for the first day or two in a case of fever, on its first attack. This for an adult patient. Similar pills of half grains of calomel and ipecacuanha, will be suitable for children of two, three, or four years old. The same articles in doses of a fourth of a grain each, will suit children six months old, and in doses of one-third of a grain each, will suit for children one to two years old.

PILLS FOR EPILEPTIC FITS.

Take of the powdered leaves of stramonium, which is the thorn-apple of the North, and the Jamestown weed of the South. It ought to be gathered in the last week of August, and dried in the shade. Of the powdered leaves of this herb, take one dram, work it up with molasses and make it into thirty pills, of which give three or four per day. When his pulse is tense near the time of an expected return of the fit, let him be bled, about mid-day; and as often as his pulse is tense about that time, repeat the blood-letting. Let his bowels be regulated by using the cathartic pills.

PILLS TO BE USED IN A CASE OF ABORTION.

Take calomel, gr. x. Opium, gr. vi.

Make three pills. If there be much fever, with or without a pain in the head, let the patient be bled one pint, or one pint and a half, according to her strength; then give one pill every sixth hour, till she is easy, or drops the fœtus or ovum. In the meantime, use the bath.

FOR A SOUR STOMACH IN GESTATION.

Take supercarbouate of soda, dr. i.; Rhubarb, gr. xxx.; Oil Cloves, drops iii. Give one-sixth of the preparation, every second hour, in two table spoonsful of sweetened water, until it affords relief.

SYRUP OF PHYTOLACCA DECANDRA.

Take of the fresh root of phytolacca decandra, (poke root) dug in August or September, ten pounds, chopped into small pieces, boil it in ten pounds of water, till quite soft, then

strain and squeeze the root, so as to obtain the whole of its virtues. Let it stand till the sediment shall be fairly precipitated. Carefully decant and measure the decoction. Then put it on the fire and evaporate, till it is reduced to five quarts. At this stage, add ten pounds of brown sugar, and keep it on a slow fire, till reduced again to five quarts, when it will be fit for use. Of this syrup, a large teaspoonful is the dose, to be repeated three or four times a day.

It will be important, in treating scrofulous ulcers, scrofulous tumors, secondary syphilis, mercurial diseases, hereditary syphilitic taint as it exists when it befalls scrofulous subjects, especially as this condition of things is exhibited, in that formidable affection, known in some parts of Virginia, by the appellation of the yaws. We often associate with this syrup, the hydriodate of potash. With or without this addition, it is very useful also in cases of chronic rheumatism.

N. B. When the root is dug, let it be immediately washed and chopped to pieces. Let it remain one day, and then weigh it. If it remain a day or two before it is boiled, it matters not. But the weight as found the second day, is to guide the preparation.

COMPOUND CHALK MIXTURE FOR DIARRHŒA.

Loaf Sugar,	oz. ½.	Pulverized Gum Opium,	gr. vi.
Prepared Chalk,	dr. i½.	Oil of Cloves,	drops vi.
Pulverized Gum Arabic,	dr. i½.	Oil of Pepper,	drops xii.

Grind the above together; then add tincture of kino, oz. i. ss., and water, oz. vi. ss. Dose, a teaspoonful every hour till the intended effect is produced.

Remedy for Thrush.—Take equal parts of sweet oil and lime water, well shaken together.

DETERSIVE SOLUTION FOR FISTULOUS ULCERS, WITH OR WITHOUT CARIES.

Alcohol,	lb. ss.	Vinegar,	oz. iv.
Salt,	oz. iv.	Corrosive Sublimate,	gr. xx. to xxx.
Honey,	oz. iv.	Water,	lb. i.

This to be used as an injection or wash.

A VERY NEAT BLISTERING OINTMENT.

Take tallow,	oz. vii.	bees-wax,	oz. iii.
hogs lard,	oz. ii.	resin,	oz. ii.

Melt them together, stirring them effectually. Take the preparation off the fire, to reduce the temperature a little, then add two ounces and a half of Spanish flies, very finely powdered, and stir till the ointment is cold.

PLUMBEAN OINTMENT.

Take red lead,	oz. xx.	Linseed oil,	two quarts.

These are to be put in to an earthen vessel, (which must be a new one every time the ointment is made,) and placed on a slow fire, out of doors, and boiled until it becomes brown, stirring all the time.

Useful as a plaster for scattering the swelling of an inflamed breast, after child-birth; first letting blood, or giving a gentle cathartic. It may be spread on a thin cotton cloth, of a suitable shape, &c., and removed every six hours for the purpose of using a shovel of hot coals, as advised in any case of pain and swelling. A camphor plaster would answer when this is not at hand. It is also useful for burns and old sores. Let it remain in the crock, and keep it covered with water.

ERUGINOUS OINTMENT.

Take fresh butter or lard,	lb. i.	Bees-wax,	oz. ii.
Burgundy pitch,	oz. iv.	Verdigris chrystalized,	oz. ss.

Melt these well together, and when beginning to cool, add red precipitate, oz. i. ss. (ground to the greatest possible fineness,) and oil of juniper, oz. ss. Let the composition be faithfully stirred till it is cold.

Useful for scald head, tetters, &c. Wash and soak off the crusts and scabs, and apply the ointment with the finger, rubbing it in well. Repeating once or twice every day.

A PATIENT RECEIVING AN APPLICATION OF

JENNINGS' PATENT VAPOR BATH.

Fig. 1. The tubular stove, for directing the heated air into the hollow space made by placing the frame, covered with three or four blankets, over the patient.

Fig. 2. The cups, one of which is filled with alcohol, or spirit of good proof, placed in the stove, and set on fire with a blaze.

Fig. 3. The frame uncovered for inspection.

NOTE.—If the patient be sponged all over with diluted sulphuric acid, (oil of vitriol,) say two or three drams to a pint of warm water, immediately before applying the heated air, it will be equal to a sulphuric bath, and will cure the itch, and some other affections of the skin. It may be necessary sometimes to repeat the application.

GLOSSARY.

As it is probable that this book may be purchased for family reference, the author has added a Glossary of the technical terms used in the work.

A

ABDOMEN, the belly, or paunch.
Abdominal, pertaining to the abdomen.
Adipose, fat.
Anasarcous, dropsical.
Anastomose, the communication of vessels with each other.
Anginose affections, inflammatory affections of the throat.
Anormal, irregular, unnatural.
Anthelmintic, having the power of destroying worms.
Antiphlogistics, medicines that reduce fever and inflammation.
Antispasmodics, medicines that allay spasms, or cramps.
Aperients, medicines that gently open the bowels.
Aphorism, a precept, a detached sentence containing an important truth.
Aphthæ, small superficial ulcers in the mouth.
Apyrexia, the period of intermission in agues.
Arachnoid, the middle membrane covering the brain.
Ardor urinæ, a scalding of urine.
Arthritis, rheumatic pains of the joints.
Asphyxia, apparent death, suspended animation.
Asthenia, diminished vital energy.
Asthenic, the same.
Axilla, the arm pit.
Axungia, hog's lard.

B

Belladonna, deadly night shade.
Blennorhœa, a morbid secretion of mucus in a part.
Borborygmus, rumbling produced by wind in the bowels.
Bronchia, the air tubes in the lungs.
Bronchotomy, an incision into the windpipe.
Bulimia, insatiable craving for food.

C

Cachexia, a generally weak, relaxed and disordered state, without fever.
Canthus, angle of the eye.
Capillary vessels—Capillaries, the very minute vessels, between the arteries and veins.
Cardia, the upper orifice of the stomach.
Cardiac region, the pit of the stomach.
Caries, an ulcerated bone.
Carotids, the arteries that convey the blood to the head.
Catamenia, the monthly discharge of females.
Cataplasm, a poultice.
Catenation, a chain of morbid actions.
Catheter, a hollow tube for drawing off the urine.
Cellular membrane, or tissue, the filmy meshes which connect the minute component parts of most of the structures of the body.
Cephalalgia, head-ache.
Cephalic, relating to the head.
Cerebral, relating to the brain.
Cerebrum, the brain.
Cervical vertibræ, the joints of the spine in the neck.
Cervix uteri, neck of the uterus.
Chyle, the milky fluid produced by digestion.
Chyme, the food after it has undergone the process of digestion in the stomach, and has passed into the bowels.
Colliquative stools, profuse, watery discharges from the bowels.
Collyrium, an eye wash.
Coma, profound lethargic stupor or sleep.
Comatose, morbidly sleepy.
Congestion, the accumulation of blood in a part.
Conjunctiva, the mueous membrane which lines the posterior surface of the eye-lids, and is continued over the forepart of the globe of the eye.

Constipation, costiveness.
Crassamentum, the red globules of the blood, collected in a mass with the coagulable lymph.

D

Dejections, alvine, evacuations by the bowels.
Deliquium, fainting.
Demulcents, soothing, mucillaginous fluids, as flax-seed tea.
Dentition, teething.
Derivatives, remediate applications, that draw the blood from an affected part.
Desquamation, scaling off, or separation of the skin in small scales.
Diagnosis, the distinguishing marks of particular diseases.
Diaphoresis, gentle perspiration.
Diaphragm, the muscular partition between the chest and abdomen.
Diathesis, any particular diposition, or habitude of the body.
Dietetic, relating to the regulation of the diet.
Diluents, bland drinks.
Diuretics, medicines that increase the flow of urine.
Duodenum, the first twelve inches of the small intestines.
Dyspnœa, oppressed breathing.
Dysuria, difficulty and pain in passing urine.

E

Ecchymosis, blood seen under the skin.
Eclampsia, convulsions in child-bed.
Effluvia, exhalations, vapors, &c.
Ejections, discharges from the stomach by vomiting.
Electuary, a compound medicine, made into the consistence of honey.
Emesis, vomiting.
Emetic, a medicine that causes vomiting
Emulsion, a milk-like fluid, formed by mixing oily or resinous substances, by means of mucilage, with water
Encephalic, relating to the cavity of the skull.
Encephalon, the brain with its membranes.
Endemic, a disease peculiar, or especially prevalent, in certain localities or districts.
Endermic, a term signifying an application of medicine to the skin,
Enema, a clyster, an injection.
Enemata, injections.
Engorgement, an accumulation and stagnation of fluids in a part.
Epidermis, the outer skin.
Epilepsy, fits, or falling sickness.
Epispastics, substances that blister the skin, as Spanish flies.
Epistaxis, bleeding from the nose.
Errhines, substances used to produce sneezing.
Error toci, an error of place, the pulse is sometimes found out of place.
Erysipelas, St. Anthony's fire.
Erythema, a slight inflammation of the skin.
Eschar, the dead substance produced by applying caustic, &c.
Etiology, relating to the causes and origin of diseases.
Exacerbation, the period of increase of a fever.
Exanthemata, acute eruptive diseases.
Ecitability, the capacity of being excited by stimuli.
Excitement, the action caused by stimuli.
Exfoliate, to cast, or scale off, as the skin, or a piece of dead bone.
Expectorants, medicines that promote spitting.

F

Farinaceous, made of meal.
Fascia, a tendinous expansion.
Fauces, the posterior part of the mouth, or top of the throat.
Febrific, that which causes fever.
Febrifuge, a medicine that has the power of arresting the progress of an intermitting fever; as bark.
Febrile, feverish.
Femoral artery, the artery felt in the groin
Filamentous, thread-like.
Fistula, a deep, tube-like ulcer.
Foramen, an opening, or hole.
Function, the action, or office performed by an organ.

G

Ganglion, a small knot, or roundish enlargement of a nerve or tendon.
Gangrene, mortification.
Gastralgia, pains in the stomach, without fever.
Gastric, relating to the stomach.
Gastritis, inflammation of the stomach.
Gastro enteritis, inflammation of the stomach and bowels.
Gestation, the act of bearing the young in the womb.
Globus hystericus, a feeling like a ball rising from the stomach to the throat.

H

Hæmatemesis, vomiting of blood.
Hæmaturia, voiding bloody urine.
Hæmopthysis, bleeding from the lungs.
Hæmorrhage, bleeding from any part of the body.
Hæmorrhoids, piles.
Hectic, a slow habitual fever, with sweats and emaciation; accompanies consumption.

Hemicrania, pain on one side of the head.
Hemiplegia, palsy on one side.
Hepatization, change of structure, so as to resemble the substance of the liver.
Hernia, a rupture.
" *Humoralis*, swelled testicles.
Herpetic, having the character of a tetter
Humoral, relating to the fluids, particularly the blood.
Hydragogue, a purge that produces watery stools.
Hydrocephalus, dropsy in the head.
Hydropic, dropsical.
Hydrophobia, dread of water, difficulty of drinking.
Hygiene, the preservation of health, that part of medicine which regards the preservation of health.
Hypercartharsis, excessive purgation.
Hyper-trophy, an unnatural enlargement of an organ.
Hypocondriasis, hyp, low spirits.
Hypothesis, a system or doctrine founded on a theory.

I

Icterode, yellow, jaundice-like.
Icterus, jaundicé.
Idiopathic, an original affection of a part.
Idiosyncracy, any peculiar habit.
Ileum, the lower part of the small intestines.
Iliac regions, the flanks, the lateral and lower parts of the abdomen.
Inosculation, the union of tubular vessels
Integuments, the skin, &c.
Irritability, the capacity of being excited into action.
Ischuria, difficulty or stoppage of urine.

L

Lactation, the act of suckling.
Lamellar, disposed in thin plates.
Languor, faintness.
Lateritious, like brickdust, brick-colored
Leucorrhœa, the whites.
Liniment, a very thin ointment.
Lochia, the discharge from the womb after child-birth.
Lumbago, rheumatism in the loins.
Lymphatics, vessels that carry white fluids.

M

Malaria, pestiferous exhalations from marshes and putrifying substances.
Meninges, the coverings of the brain.
Meningitis, inflammation of the coverings of the brain.
Metastasis, a translation of a disease from one part to another.
Miasm, the same as malaria.
Modus operandi, the manner of operation
Morbific, capable of causing diseases.

N

Narcotic, medicines that blunt the sensibility of the nerves.
Nates, the hips of the child.
Nephritic, affections of the kidneys.
Niuralgia, painful affections of a nerve,
Normal, natural, healthy.
Nosology, a systematic arrangement, explanation and definitton of diseases.

O

Œdema, swelling from a dropsical collection in the cellular membrane.
Œsophagus, the gullet.
Olfactory, relating to the sense of smelling
Ophthalmia, inflammation of the eyes.
Opiate, a medicine whose prominent ingredient is opium.
Organic affection, a disease in which more or less of the substance of a part is changed or disordered.
Organism, the peculiar structure of a single organ.
Organization, a system composed of several individual parts.
Ossified, changed into a bony structure.
Os uteri, mouth of the womb; sometimes called *os tincæ*, or *externum*, the external opening to the uterus.

P

Paralysis, palsy.
Parenchyma, the proper substance of organs.
Paroxysm, a periodical exacerbation.
Parturition, labour, or child-birth.
Patechiæ, spots like flea-bites, sometimes purple when there is danger.
Pathognomonic, characteristic symptoms
Pathology, doctrine of the causes and nature of diseases; lately, this term has been not very properly applied to the diseased appearances discovered on dissection.
Pectoral, relating to the breast.
Pectoriloquism, a peculiar sound in the lungs when the patient speaks, heard through the sides of the chest by the stethescope.
Percussion, striking the breast with the extremities of the fingers to ascertain the kind of sound produced.
Pericardium, the membranous sack surrounding the heart.
Peristaltic motion, the vermicular motion by which the bowels push forward their contents.
Pharmaceutic, relating to the compounding, &c. of medicines.
Pharynx, the opening to the gullet.
Phenomina, any perceptible change

which takes place in an organ or function any remarkable or unexpected occurrence.

Phlegmasia, inflammation.

Phlegmonous, inflammatory.

Phlogosis, superficial inflammation.

Phymosis, contraction of the foreskin, so as to prevent it being drawn back.

Plethora, fulness of blood.

Pleuritic, of the character of pleurisy, attended with pain in the side of the chest

Pleurodynia, a pain in the breast without inflammation.

Pneumonia typhoides, inflammation of the lungs of a low and dangerous type.

Post mortem, after death.

Prolapsus, a falling down.

Prophylactic, any means employed for the preservation of health.

Prostate gland, a gland situate at the neck of the bladder.

Ptyalism, salivation.

Pulmonary, relating to the lungs.

Puruloid, resembling pus or matter.

Pus, the yellowish thick fluid or matter formed by inflammation.

Pylorus, the lower orifice of the stomach

Pyrexia, fever.

Pyrosis, water brash, or the heart-burn.

Q

Quartan, a periodical disease returning every seventy-two hours. [daily.

Quotidian, daily; an ague that returns

R

Rachialgia, colic, with costiveness and

Rachitis, rickets. [vomiting

Rationale, explanation of the manner how

Rete mucosum, the mucous-like expansion immediately under the skin, and in which the coloring matter, that constitutes the color of the surface is deposited. [sures of the skin.

Rhagades, chaps in the skin, deep fis-

Rigors, convulsive trembling.

Rubefacients, external applications that inflame the skin.

S

Sanguiferous, conveying the blood.

Sanguineous, bloody, relating to blood.

Schneiderian membrane, lining of the nose, &c. [tion of a gland.

Scirrhus, a hard, degenerated tumefac-

Scybalæ, hardened masses of excrement detained in the colon.

Sebaceous, suet-like matter.

Secretion, the separation of a fluid or substance from the blood by the action of a living organ.

Secretory, vessels, or organs, that separate a peculiar fluid or substance from the blood. [actions of the system.

Sedatives, medicines that diminish the

Semicupium, warm bath, the body being immersed only up to the middle.

Sensorial power, an influence produced by the brain and nerves, by which they govern and sustain voluntary and vascular action. [tre of feeling.

Sensorium commune, the brain, the cen-

Serous, watery.

Spiculæ, pointed like darts.

Sthenic, a condition of the system having more than ordinary power.

Strumous, scrofulous.

Subsultus tendinum, a convulsive, sudden twitching of the sinews.

Sui generis, two Latin words, meaning of its own sort, or in its own way.

Sympathetic nerve and ganglia, this structure extends from the head inside of the body, down by the back bones, to the lowest extremity of them.

Symptomatic, the consequence of some

Syncope, fainting. [other affection.

Synochal, fever of a highly inflammatory character. [character.

Synochus, fever of a sub-inflammatory

Systole, in anatomy, the contraction of heart for expelling the blood, and carrying on the circulation.

T

Tarsus, the edge of the eye-lid.

Temporal artery, the artery at the temple

Tenesmus, an ineffectual and painful urging to go to stool.

Tetanus, lock-jaw.

Therapeutic, relating to the employment of remedies.

Thoracic, belonging to the chest.

Thorax, the chest.

Tormina, griping pains.

Tubercles, small, hard tumours, resembling cheese in their internal structure.

Type, the peculiar form assumed by a fever as to the period intervening between its paroxysms or exacerbations.

Typhoid, resembling typhous fever.

U

Ureters, the tubes which convey the urine from the kidneys to the bladder.

Urethra, the canal of the penis through which the urine is discharged.

Utero-gestation, the term of pregnancy.

V

Vaccine, cow-pox. [panion.

Vade-mecum, a text book, pocket com-

Vesication, blistering.

Viscera, the bowels.

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ERRATA.

Page 29, fourth line from top, for "dismenorrhagia," read, dismenorrhœa.

Page 64, seventeenth line, after the word arteries there ought to be a comma, (,).

Page 105, eighth line from the top, for "full and vigorous," read, full, frequent and vigorous.

Page 193, nine lines from bottom, for "lymphatic system," read, lymphatic temperament.

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